The Hunterian Oration,

Delivered in the presence of their Royal Highnesses the Prince of Wales and the Duke of York at the Royal College of Surgeons of England on the Centenary of Hunter's Death, Feb. 14th, 1893,

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PART I.

HUNTER AS A THINKER AND REASONER.

MAY IT PLEASE YOUR ROYAL HIGHNESSES, MR. VICE-PRESIDENT, MY LORDS AND GENTLEMEN,—I feel sure that I am but expressing the general sentiment of the representative body of surgeons here assembled when, in their names and in that of the College over which it is my privilege to preside, I offer to your Royal Highnesses our respectful thanks for your presence here to-day. We venture to accept your presence on such an occasion at the celebration of the centenary of the death of the great founder of scientific surgery as an indication of your approval of the work of this College as a public institution, and as a promoter of the scientific surgery that John Hunter established. We would assure your Royal Highnesses that your visit will not only be gratefully remembered but prove to be a powerful incentive to our continued good work as the national custodians of the Hunterian Museum, guardians of Hunter's reputation and promoters of the art and science of surgery.

One hundred and sixty-five years ago a careful observer might have read in one of the papers of the period the announcement that on Feb. 14th, 1728, the wife of John Hunter of Long Calderwood, in the parish of East Kilbride, East Lanarkshire, about eight miles from Glasgow, gave birth to a son, this son being her tenth child, her husband being then sixty-four years of age. Sixty-five years later—that is, in 1793, or one hundred years ago—another observer would have read in the *Oracle* of Oct. 18th an intimation of the death of this son, who had been named John after his father, in the following terms: "This eminent surgeon and valuable man was suddenly taken ill on Wednesday (Oct. 16th) in the council-room of St. George's Hospital. After receiving the assistance which could be afforded by two physicians and a surgeon he was removed in a Sedan chair to his own house in Leicester-square, where he expired about two o'clock, in his sixty-sixth year. The profession has lost in him one of its principal pillars and brightest ornaments, and mankind may lament in him one of their best benefactors. The ardour and success with which he cultivated natural knowledge and philosophy and rendered them subservient to his profession had deservedly raised him to the first name. The monument of industry and genius which he has left behind will best speak his praise and call for the gratitude of this and future ages."

These two announcements intimated to the world the beginning and ending of the life of a man who has become one of the most brilliant of the fixed stars of our national genius; and he became so, not so much by his contributions to the stock of human knowledge, which in themselves were colossal, as by his opening up a line of investigation which was entirely original, and by his marking out in the clearest way the paths which all future investigators must tread who desire to decipher the problems of life, disease and death. During this century "Great men have been among us, hands that penned and tongues that uttered wisdom," but to-day we celebrate the death of the greatest; and I would that I had the wisdom of a Bacon and the eloquence of a Burke to do justice to his memory. As a humble disciple, however, of John Hunter, and in the presence of his followers, many of whom have in adding lustre to his reputation acquired much for their own, I propose to display before you some of the leading conclusions of his life, and by trying to understand his methods and modes of work learn how we can help ourselves and those who may follow us to maintain, extend, and develop what will endure for all time—the school which Hunter originated, and to which every good surgeon since his age has unquestionably belonged; for the Hunterian era of surgery, which is rightly marked by Dr. Billings of Washington as the starting point of modern surgery, is now established and it is but right that we, its professors, should do our best, not only to encourage the study of Hunter's works, which have a power of awakening thought and stimulating industry of a unique character, but to provoke those who shall come after us to the imitation of whatever there was of good report, noble, or lovely in Hunter's life, as well as in the lives of those who since our last oration have, in the words of Dante,

"Doffed this garb of frail mortality."

I would here introduce the names of some distinguished Fellows of our College, with the dates of their death, who have gone "where we all must go" since our last oration. Sir Prescott Hewett died, aged seventy-nine, on June 19th, 1891; John Wood, aged sixty-six, on Dec. 19th, 1891; Berkeley Hill, aged fifty-eight, on Jan. 7th, 1892; Sir William Bowman, aged seventy-six, on March 29th, 1892; Charles Hawkins, aged eighty, on April 4th, 1892; F. Le Gros Clark, aged eighty-two, on July 19th, 1892; Edward Cock, aged eighty-seven, on Aug. 1st, 1892; Samuel A. Lane, aged ninety, on Aug. 2nd, 1892; Alfred Baker, aged seventy-eight, on Jan. 12th, 1893—all good Hunterian surgeons who made for themselves names which will long be remembered by the members of the profession they adorned, and many of whom held high office in this College; and last, but not least, I must mention the name of our oldest Fellow, that great anatomist, biologist and natural historian, Hunter's greatest expositor, Sir Richard Owen, who died on Dec. 18th, aged eighty-seven, and by his long and well-spent life not only left natural science greatly his debtor, but by his genius and industry attracted to the museum of this College the attention both of the scientific and lay world, and helped, in a measure which is difficult to calculate, during the twenty-eight years of labour he devoted to our Hunterian collection as Clift's assistant, and our conservator and professor, to place it in the proud position in which it now stands. May this College never forget these signal services, nor fail to do honour to the memory of this great man.

I have no intention of entering into the particulars of Hunter's early life; but, brought up as he was by a loving mother and guided by a father "who maintained to the very end of his life (1742)—that is, to his son John's fourteenth year—a clear and sound judgment, as well as the tenderest and wisest interest in the welfare of his children" (Simmon's letter), there is no reason to think that John, more than any of his children, was left uncared for, but every reason to believe it probable, with Luther Holden, our eloquent orator for 1881, "that John was educated at the same school as his brothers, William and James, and that he was brought under the influence of an equally good moral training." That he spent much of his time in country amusements and country pursuits is more than probable, but that he did so as an idler is beyond belief, for on his own authority we have it stated that when "I was a boy I wanted to know about the clouds and the grasses, and why the leaves changed colour in the autumn; I watched the ants, bees, birds, tadpoles and caddis worms. I pestered people with questions about what nobody knew, or cared anything about," and can we, with our full knowledge of the man and of what he subsequently achieved, say that the education he has himself described so tersely and so well was not for him the very best he could have had? For, "as the child is father of the man," is it not as clear as daylight that all his senses had been educated to the highest degree, and that not one had been allowed to slumber; whilst his reasoning powers had been brought to bear upon problems of the highest interest, concerning things above, upon and beneath the earth; and in what better way could they have been employed? It was not, however, till he came to London at the age of twenty that his "natural fitness for the study of living things" had full scope in the dissecting room and museum of his highly distinguished brother William. For it was there that new worlds of wonder were opened to him in human and comparative anatomy; and it was there likewise that he used his opportunities of questioning nature so well, as not only to open up fresh avenues of knowledge, but to demonstrate the necessity of making comparative anatomy and physiology preliminary studies to that of life as well as of disease; pathology following in the line of physiology. Hunter's physiology, moreover, was of no narrow type, but of the broadest and deepest character; indeed, it included "the whole science of the normal life of all things that live or have lived" in both the vegetable and animal kingdoms; and his comparative anatomy was no less inclusive, for it took in the comparative structure of all living things with

the uses and functions of their different parts. Whilst he unveiled many of the secret operations of nature, his material was so arranged as to illustrate the workings of every vital process as displayed in each organ, and traced through every gradation of being, from the lowest to the highest; or, to quote from our second conservator, the late Sir Richard Owen, "his labours not only established a body of physiological doctrines, to the happy influence of which every cultivator of the healing science now bears grateful testimony, but they deserve to be viewed in the light of a first attempt to arrange in one concatenated system the diversified facts in comparative anatomy"; comparative anatomy in Hunter's time being a new science.

If we ask ourselves what it was which helped to make Hunter great, we must, as an encouragement to weak humanity, refer to his industry; for John Hunter was industrious in the highest degree and possessed a transcendent capacity for taking trouble. Without this attribute it is probable that his other great qualities would have failed to have made him famous, and they certainly would never have enabled him to leave the unique collection of biological facts behind him, such as is contained in the museum it is our pride as Englishmen and our privilege as British surgeons to possess. I emphasise this quality of industry, as it can never be too strongly or frequently repeated that industry and the capacity of taking trouble are essential qualities for success in every calling or walk in life, and that without them all intellectual qualities, however noble, are apt to be frittered away and rendered futile. The pages of history record the wreck of many men of high promise and intellectual ability who have failed to shed a lustre upon their period for want of this essential qualification. As an additional testimony to Hunter's industry let me quote from a lecture of our late curator—a successor of Sir Richard Owen—now so worthily known as Sir Wm. Flower, in which he said "that Hunter had collected materials for a work which needed but the finishing touches to have made it one of the greatest, most durable, and valuable contributions ever made by one man to the advancement of the science of comparative anatomy."[1] So that on the authority of the late Sir Richard Owen we have it stated that Hunter made the first attempt to establish a new science, that of comparative anatomy; and on the authority of Sir Wm. Flower we are told that the success of the attempt was in itself complete. As an observer John Hunter stands pre-eminent, and as an indefatigable student of nature he was supreme; nothing escaped his attention, and what he observed he verified so carefully and thought over so intently that he saw more accurately, deeply, widely and sagaciously than anyone else. In all his works Hunter followed the Baconian method, and yet we have no evidence that he knew anything of Bacon's work or of the inductive mode of reasoning which he introduced. Hunter, apparently out of the depth of his own nature, unconsciously travelled along the Baconian road. From boyhood, as he himself has told us, he had observed and interrogated nature in many of her works, and as a result of his observations high problems had been suggested. He wanted even then to know many things which seem still unknowable. This want indeed never left him, and to supply it he, as life went on, diligently sought for every fact his senses could discover in the different lines of investigation he followed, and, what is more, described the facts he found with an accuracy which is absolute; where he was uncertain of his facts he looked again, and to test a doubtful one he experimented. He always doubted what he could not prove. Hunter observed to find facts, and experimented to make and to prove them. The absolute necessity of *accuracy of observation* was so fully recognised by Hunter that he trusted nothing to memory, but wrote down what he saw at once; for, using his own words, he felt that "men should be very accurate in ascertaining the truth of facts before they advance them, especially when they tend to overturn a received *opinion or to establish* a new one."

If Hunter was great from his industry and as an observer, he was still greater as a *thinker and reasoner*. Facts alone could not satisfy his mind. He, of necessity, speculated upon their value, and reasoned upon them with a closeness and far-seeing intelligence which was surprising. He seemed as by intuition to recognise at once the full value of any fact, and to be able to place it in its right position in relation to all knowledge; as a consequence, he was able, from the accumulation of the material which his observation and experience had yielded, to elicit the principles upon which they were founded and the processes by which they were brought about. Much as Hunter did, said his friend Cline in this theatre in 1816, "he thought more. He has often told me his delight was to think." "The facility with which a man thinks," said Hunter himself, "gives him a superiority over others; few," he added, "have observed nature with more attention than myself, yet, even now, I think myself scarcely equal to the task I am undertaking—the elucidation of the economy of human life." Again, in the year 1768, "I," wrote Hunter, "was called upon to be a teacher of anatomy, but I congratulate myself that I did not become so, as it could not have failed of engaging my attention too much to admit that general attention I have been able to pay to surgery; and the necessity I should have been under to read might have occupied me too much and *prevented my forming habits of established modes of thinking.*" Again, "what, more than all, induced me to lecture was the great advantage everyone finds by putting his thoughts into writing. A man can never tell how much he knows till he arranges his knowledge, and then he can tell how defective it is." It must therefore be accepted that deep thinking was one of Hunter's characteristics; and I can give you no better evidence of this than that quoted by Abernethy, on the authority of Clift, "that Hunter would stand *for hours* motionless as a statue, except that with a pair of forceps in either hand he was picking asunder the connecting fibres of some structure he was studying;" and this was written of him in the year of his death.

What a picture is here presented to our minds of Hunter as an inductive thinker! The new fact displayed to view after infinite trouble. The dissector patiently reasoning out its meaning, standing for hours, in the words of an eloquent friend, before me, "patient and watchful as a prophet, as if he were sure that the truth would come—in the clearing of some mental cloud, or as in a sudden flash, with which, as in an inspiration, the intellectual darkness became light."[2] The picture is complete. It should be painted by another Reynolds. But Hunter was more than a thinker and reasoner on facts, although as a man of science he contemplated nature with his understanding, and, as a lover of truth, he kept to his facts; for he possessed to an equally high degree imagination and an intellectual foresight, with that higher degree of intellectual power which enables a man to recognise a truth directly it is enunciated; to perceive self-evident facts, and through them to read the laws and fundamental principles by which nature works. He obtained his ideas as much through the reason by reflection as through the senses. In the speaking portrait above me this mental characteristic of John Hunter is displayed in a manner which genius alone could have depicted, for the thinker is clearly looking upwards as if he had heard "whisperings from the Infinite," and at the moment when one of the laws by which nature works had suddenly dawned upon him. He is manifestly looking beyond the mists which surrounded the wonderful world of life he had so long been investigating, and many of the mysteries of which it had been his privilege to unveil. Indeed, Hunter's intellectual faculties had been so highly educated and were of so high an order that he was able to read the unknown truth in the known fact, and by observation and thought to work out principles and general truths which have thrown a flood of light for ever not only upon all past but upon future knowledge. And, what is more, his work has been so suggestive that, whilst we, his successors, adopt his thoughts, we profit by the thoughts that his suggest. In all Hunter's work fact and theory were indissolubly bound together, and as a proof that his theories were good every fresh fact he discovered found its place in them. "My mind is like a beehive," said Hunter to Abernethy, one of Hunter's friends and earliest and most enthusiastic expositors, and "the simile struck me," wrote Abernethy, "on account of its correctness, for in the midst of buzz and apparent confusion there was great order, regularity of structure and abundant food, collected with incessant industry from the choicest stores of knowledge." Hunter apparently had no idea of his own great intellectual powers. Abernethy records he had heard Hunter say, "I know I am but a pigmy in knowledge," and declare that he was not conscious of possessing any peculiar talent, and that if he had promoted professional knowledge it seemed to him chiefly to have arisen from his disposition to distrust opinions and to examine every subject

[1] Introductory Lecture, Royal College of Surgeons, Feb. 14th, 1870.

[2] Sir James Paget, Hunterian Oration, 1877.

for himself. But it may be fairly asked, Was not this state of Hunter's mind due to the fact that his knowledge was so great that he knew his littleness? I rather incline to this latter view.

Hunter was a *nervous man* and much disliked speaking in public. He never gave his first lecture, wrote Sir E. Home, without taking thirty drops of laudanum to take off the effects of his uneasiness. Hunter lectured always from notes which he read, and from comparing different copies of his lectures I am sure that he divided his subjects into aphorismal paragraphs, which he subsequently enlarged upon and illustrated by cases. He also revised and corrected his great work on the blood, inflammation, and gunshot wounds for twenty years before he prepared it for the press, and he then died before it was published. He did this because he was always unwilling to publish anything which appeared to himself unfinished; for the same reason he would often withdraw papers read before the learned societies, because he felt they wanted something more to make them satisfactory. With Hunter this cautiousness was something of a misfortune; for his great work on inflammation and gunshot wounds, upon which so much of his professional reputation has been built, was not published till after his death, and had it not been for his public lectures in the school of St. George's Hospital and at 28, The Haymarket, his advanced views of pathology and surgery would during his lifetime have been little known. It was probably on this account that Hunter was insufficiently appreciated. His teaching was known but to a few. It is interesting to speculate as to what would have been the effect of this cautiousness in publishing if it had been as rigidly observed by Hunter's followers as it was by Hunter. Should we have been great losers by its adoption and would individuals have been great gainers? Could we now with any truth agree with Hunter when he wrote: "That it is surprising to see how a young man, if he catches an idea which has any novelty, will write away on it—he will tell you wonders;" and can we say, if the tillers of the field of science are now more numerous than they were in Hunter's day, that they are so eager to reap the fruit of their labour as to bring it to market before it is ripe? Extreme cautiousness and a dread lest he might have been led to publish any new thought before it was absolutely proved was evidently one of Hunter's characteristics; and, as a further proof of this, it should be added that Hunter always regarded any opinion or conclusion he formed as provisional, for he felt that one new fact or observation might lead him to change it. He would say to students he was teaching, "You had better not write down that observation, for very likely I shall think differently next year."

As an *experimenter*, Hunter was a king and a model one. He never made an experiment without a definite object, either to illustrate an idea, prove a fact, clear up a doubt or enable him to grasp a truth which he could not prove; and although he made every investigation that he could the subject of experiments each one was preceded by deep reflection. In one place he said "that it was not justifiable to draw conclusions from a single experiment." In another, "I think it may be set down as an axiom that experiments should not be often repeated which merely tend to establish a principle already known and admitted, but that the next step should be the application of that principle to useful purposes;" and later on he wrote, "We can have no very high idea of experiments made by men who, for want of anatomical knowledge, have not been able to pursue their reasoning beyond the simple experiment itself. It happens, unfortunately," he added, "that those who, from the nature of their education, are best qualified to investigate the intricacies and improve their knowledge of the animal economy, are compelled to get their living by the practice of a profession which is constant employment." To his friend Jenner, who had given only a conjectural solution of the phenomenon, he wrote: "I think your solution is just; but why think? Why not try the experiment? Repeat all the experiments as soon as you receive this, and they will give you the answer." "Fontana's experiments," he wrote, "for injecting solutions into the blood are not worth a pin, and that owing to his not having a knowledge of this fact—that air thrown into the vessels kills. After I discovered this I went over all my experiments again, and found very different results when I injected no air, which before that had been frequently inserted."

Now, I must give one further quotation from Hunter as to the general outcome of experiments: "In pursuing any subject most things come to light it were by accident—that is, many things arise out of investigation that were not at first conceived, and even misfortunes in experiments have brought things to our knowledge that were not, and probably could not have been, previously conceived. On the other hand, I have often devised experiments by the fireside or in my carriage, and have also conceived the result; but when I tried the experiment the result was different, or I found that the experiment could not be attended with all the circumstances that were suggested."

These views of Hunter upon experiments cannot be otherwise than valuable. They are characterised by absolute honesty of purpose and breadth of knowledge. Last, but not least, Hunter *worked for fame* and not for profit. What he made in his profession he spent on his museum; and when he was interrupted in his scientific pursuits to earn a fee he went because he knew he would want the fee to-morrow to supply his needs. He never went from choice, for his inclination would have held him closely to his work. He was also an enthusiast in all he did, and he therefore worked with a will. And can we wonder at his being so? for at every step in his investigations fresh natural beauties were being revealed, and at every resting-place with his luminous mind these fresh beauties suggested the laws and principles on which they rested. And, if in us the mere reading of his works produces an intellectual pleasure of a stimulating and awakening nature, with what an intense thrill of satisfaction must the first vivid conception of those secrets of the laws of nature have been attended in his frame, and with what natural reluctance would he have left his dissecting table!

I have thus, then, so far in this lecture been considering Hunter as a worker, for it has been my privilege and pleasure to place before you the main mental characteristics of as vigorous and original a human being as mankind has ever seen; of one who came into the world with little promise, and some say with less advantages than most; but whose faculties budded out so rapidly under favourable conditions as to enable their possessor to remodel the fabric of knowledge and revolutionise our modes of thought, as well as to bring forth leaves, flowers, and fruit for his own generation to wonder at, and for all future generations to enjoy and feed upon, for the flowers and fruit of Hunter's genius are everlasting. I might add that Hunter was said by Sir E. Home to have been of a short stature. By Dr. Adams he was described as being much below the middle stature. By Mr. Clift he was said to have been five feet two inches, and Clift must have been right. He was uncommonly strong and active, very compactly made, and capable of great bodily exertion. His countenance was animated, and in the latter part of his life deeply impressed with thoughtfulness; and this we can well understand if we attempt to understand such a man at all and if the information we have of his thoughts and doings is correct.

In the sketch of Hunter's character and mental characteristics which I have ventured to place before you I have taken the liberty of illustrating Hunter by Hunter, for I felt that so remarkable a man could be best interpreted by himself, and I have thus quoted his own words where they could be found rather than the opinions of others, and his own acts as they have been recorded in his works. Judicially, therefore, we must pronounce the verdict that John Hunter as a man had individual and intellectual qualities which have never been surpassed, if ever equalled, and if he had imperfections we will not look for them, for he was human, and no shortcomings could dim the lustre of his splendid genius.

PART II.

HUNTER AS A BIOLOGIST.

I will now pass on to consider what Hunter did, and I fear that here failure must follow the attempt, for in re-reading all his works and the works of his commentators I feel almost lost in wonder at the magnitude and variety of his undertakings and of his performances; for the whole world of vegetable and animal life was his subject, and the workings of everything possessing life the objects of his scrutiny. If form and structure were his chief early studies, function and purpose always occupied a large part of his attention, and these he regarded as much in a state of health as under the influence of disease; as much in their abnormal as in their normal relations. "Vital operations were," he said, "always his favourite business and amusement." Yet the study of all these subjects was only a means to an end, and was subordinate to the main object of his life—namely, the improvement of surgery by the elucidation of pathology

(the science which investigates the laws of disease), the causes which determine any departure from the normal type, whether of form or function, and the means which nature adopts for the healing of wounds and the repair of injuries. It was in order to understand these processes, and to search out the laws by which they were governed, that Hunter recognised the necessity of first investigating the structure of the living body, with the functions of every organ in a state of health; for he held that physiology was as essential to explain pathology as it was to explain the healthy actions of every-day life. But he saw further, for, in order to understand in man the structure of his organs and their functions, he realised the wisdom of first examining the structure and vital processes of identical organs throughout the whole animal kingdom from its lower up to its higher grades. He appreciated to the full the force of Bacon's dictum, "That no natural phenomenon can be adequately studied in itself alone, but to be understood must be considered as it stands connected with all nature;" or, to use Hunter's own words, "Nothing in nature stands alone; every art and science has a relation to some other art or science, and it requires a knowledge of these others, as far as this connexion takes place, to enable us to become perfect in that which engages our particular attention." If we look to Hunter's biological researches and review his conclusions, we find them very clear. He first took life as a subject, and came to the conclusion that, although "the man, the oak, and the mountain are but different modifications of the same elementary matter," "mere composition of matter does not give life, for the dead body has all the composition it ever had"; "that life never can arise out of, or depend on, organisation, but that organisation arises from and depends on life, and is the condition of vital action." "Life is a power superadded to matter, and is a property we do not understand; we can only see the necessary steps to it." "A seed put into a moist ground grows, but the moist ground is only a necessary attendant and not the immediate cause. The life of the seed stimulated to action by the moisture is the immediate cause of its growth. All the water in the world would not make a dead seed grow." "The same power that exists in the seed is in the egg." "The *first* and most simple idea of life is its being the principle of *self-preservation*, preventing matter from falling into dissolution; for dissolution immediately takes place when matter is deprived of life. The *second* idea of life is its being the principal cause of all action." "No part of the body is to be considered as a complete living substance producing and continuing mere life without the blood; so *that* makes one part of the compound without which life would neither begin nor be continued." "Every individual particle of animal matter is possessed of life, and the least imaginable part which we can separate is as much alive as the whole." "Blood is not only alive itself, but is the support of life in every part of the body." "This living principle in the blood is in its effects similar to the living principle in the solids; it owes its existence to the same matter which belongs to the other, and is the *materia vitæ diffusa* of which every part of an animal has its portion; it is, as it were, diffused through the whole solids and fluids, making a necessary constituent part of them, and forming with them a perfect whole." "The *materia vitæ* keeps up the harmony between the blood and the solids." "Mere organisation can do nothing; even in mechanics it must still have something corresponding to a living principle—namely, some power."

Hunter recognised that the chemistry of the laboratory and of inorganic bodies dealt with the same elementary substances as those of life; but he likewise recognised that the combinations of these same elements in the inorganic world differed widely from those worked up in the majesty of silence in the life department of nature's works. He proved that the life of the flesh was in the blood. And it is interesting to note how, in all his investigations into the methods which nature adopts for preserving life, he had always before him the still unsolved problem which lies behind, as to how and where the food that man takes to maintain life becomes alive; becomes, as he expressed it, animalised and vivified, for, as he said, "from living matter only living parts can be made." He was always asking himself such questions as: Does life begin after digestion in the chyle? Is the chyle alive before or after it mixes with the blood? What are the effects of respiration on the life of the blood? Indeed, I do not think that I shall be far wrong when I state my belief that it was to Hunter's attempt to solve these and allied problems that we are indebted for the museum in the centre of which we now stand, and for the great physiological principles bearing upon the economy of life, for which all biologists and pathologists must be for ever grateful. But he was not content to trace life only in animals that move; he searched further, for "I had long suspected," he wrote, "that the principle of life was not wholly confined to animals or animal substance endowed with visible organisation and spontaneous motion; but supposed that the same principle might exist in animal substances devoid of apparent organisation and motion when the power of preservation was simply required." "I was led to this opinion," he added, "in 1757, about twenty years ago, when busied in making drawings of the growth of the chick in the process of incubation. I then observed that when an egg was hatched the yelk (which is not diminished in the time of incubation) was always perfectly sweet to the very last, and that the part of the albumen which had not been expended on the growth of the animal some days before hatching was also perfectly sweet, although both were kept at a heat of 103° in the hen's egg for three weeks and in the duck's egg for four; but I observed that if an egg was not hatched that egg became putrid in nearly the same time with any other dead animal matter." This experiment suggested that eggs possessed a living principle.

To determine from other tests how far this suggestion was true, Hunter made the following experiment: "After having placed an egg in a cold mixture about zero till it froze, he allowed it to thaw, by which process it was to be supposed the preserving powers of the egg must be destroyed. He then put this egg back into the cold mixture, and with *it one newly laid*, and found the difference in freezing was seven minutes and a half, the fresh one so much longer time resisting the powers of cold. Again, a fresh egg, and one that had been frozen and thawed, was put into a cold mixture at 15°. The thawed one soon came to 32° and began to swell and congeal; the fresh one sank to 29·5°, and *in twenty-five minutes later than the dead one* it rose to 32° and began to swell and freeze." From these experiments Hunter concluded that a fresh egg has the power of resisting heat, cold and putrefaction in a degree equal to many of the more imperfect animals; and it is more than probable this power arises from the same principle in both—"the principle of life." These experiments appear to me so simple and interesting that I have been induced to bring them under your notice, for I question whether, before or since, eggs have been used for a more lofty purpose, and I think the conclusions which Hunter drew from his experiment are to be accepted. They tend, however, to support another principle which was dear to the mind of Hunter, and which should ever be before us as practical surgeons, and that is "the antiseptic power of life." He, however, went even beyond this, for he believed that "no changes wrought in animal and vegetable bodies can possibly arise from fermentation; for the presence of life resists fermentation, and no body, whilst retaining its life, can possibly be acted upon by fermentation—which can only take place after the destruction of life, which is the preserving principle." Again, he demonstrated the truth that organised creation had been formed on a *single plan or type*, which may be traced throughout the whole animal world, and that the lower animals represent permanently the successive stages through which higher animals pass until they have attained their full and perfect development. Thus he reduced organisation to one type as he had reduced life to a single principle. But he saw further, for it seems fair from his writings to infer his belief that in the gradual evolution of this type through the animal creation the idea which controlled the developmental force throughout its innumerable stages must have been pre-existent, since the idea, by virtue of which the thing made has its form, function and life, must have existed before it was revealed in its material form. He saw, with Œrsted, that the animals and plants of all periods are but different emanations from the same great thought. Hunter, however, did even more than this, for he laid it down as a law that "every deviation from that original form and structure which gives the distinguishing character to the productions of nature may not improperly be called *monstrous*. According to this acceptation of the term the variety of monsters will be almost infinite, and as far as my knowledge has extended," said Hunter, "there is not a species of animals, nay, there is not a single part of an animal body, which is not subject to an extraordinary formation. Neither does this appear a matter of chance, for it may be observed that every species has its disposition to deviate

from nature in a manner peculiar to itself—each part of each species seems to have its monstrous form originally impressed upon it." And, lastly, he formed the superb conception "that in nature nothing is irregular, nothing is perturbed, nothing is disobedient, and everything is really regular, uniform and obedient to recognised principles. With him the science of pathology did not mean the laws of disease in man alone or even in the whole organic kingdom, but it meant the laws of disease and malformation in the entire material world, organic and inorganic."[2]

These are only a few of the broad generalisations which John Hunter educed from his careful exposition of biological facts and patient and deep thought upon their meaning. They are grand conclusions even now, if we regard them in the light of our present advanced knowledge; but they become grander when we recall the fact that biology and comparative anatomy in Hunter's day were unknown sciences and branches of knowledge for which there was no taste. Indeed, I have out of Hunter's own mouth already recorded how that he had as a boy pestered people with questions on natural history, subjects about which nobody knew or cared anything, and it is very probable that as a man he might have said nearly the same thing. It is true that the discoveries of William Harvey, which were made known in 1620, had not only dispersed for ever the mists of vague speculation which had so grievously hung around the great central point of physiology—"the circulation of the blood"—but by the illuminating influence of his work had thrown a light upon many other dark spots of knowledge, which ought to have and might have enabled some of those who followed Harvey to read the lessons in his spirit. But, strange to say, no such disciple appeared, and it was left for our own John Hunter, upwards of a century and a half later in time, to follow in the track which Harvey had prepared, and to light a lamp which illuminated every branch of natural history and biology, which has helped succeeding generations to reach our present proud position of increasing knowledge, and which will continue to burn as an illuminating force so long as the human intellect is capable of employment.

PART III.

HUNTER AS A SURGEON.

Time tells me, however, that I must hurry on, for I want, before I conclude, briefly to place before you the claims of John Hunter as a surgeon, as a physician, as a contributor to medical science considered as a whole; for, to his mind, what we now call medicine and surgery were inseparable, since both branches of knowledge are governed by identical laws, and the pathology of one branch is the pathology of the other. But, first of all, let me assert the fact, and mention it as one of Hunter's special merits for which our profession will to him for ever be indebted: that he raised it out of the position of a poor art, based on empirical knowledge and practised too much as a trade, to establish it firmly as a high and elevating science, at the same time raising its practitioners in the social scale; and in saying this I would have it known that he did as much for medicine as for surgery, and that the physician may claim him as much as the surgeon as his own. He made our profession scientific by basing it upon the widest knowledge of the structure and functions of all living things; and by so systematising the facts which had been gathered by past experience and his own unwearied industry as to educe from them, by his searching and luminous intellect, laws and principles for the guidance of future generations in their study and treatment of disease in any of its forms. If Hunter had come into this world for no other purpose than this he would not have lived in vain; he would have been worthy of the thanks of civilised mankind. In his teaching, therefore, little else is to be found than the application of the great principles of our science to the treatment of disease and injury. "The principles of disease," he said, "which become the object of surgery have not been sufficiently attended to, and these are what I shall chiefly consider." As soon therefore as he proceeds to consider "the disturbances which nature works and of her cures," he lays down the great physiological principle of *natural repair*, and states in pithy language: "That all parts are capable of being restored in their kind." "When loss of substance happens in any part, and that loss is to be restored, the parts which restore the loss or which regenerate the substance for that purpose preserve the same disposition with which they were at first formed, the original disposition being ready to act when called upon." The process of restoration in his mind being similar to that of formation, it is therefore to be regarded as a natural process, "for," adds Hunter, "a sore that is going through all its natural stages to a cure cannot be called a disease." The different processes of natural physiological repair occupied much of Hunter's attention, and his investigations into the nature of the blood, its life and its influence on the nourishment of the system and on repair are not the least interesting portions of his work. But in this assembly of Hunterian disciples, and in these days when his views are insisted upon by most surgeons, there is no necessity to dwell upon them at any length; indeed, had they not been too much mixed up by Hunter with the pathological subject of inflammation, I should probably have passed them by with a brief notice. But I want on the present occasion to emphasise a fact which he himself recognised, but did not make sufficiently clear, *that repair in all its forms is effected without inflammation.* That he saw this and more cannot be disputed, for I shall be able to demonstrate the truth of the assertion out of his own words, and also be able to show that he entertained the opinion that in a case of injury where inflammation takes place repair is interfered with, if not arrested. Why he in his writings failed to make these views sufficiently clear was doubtless owing to his want of knowledge as to the true causes of inflammation, and I trust I may be pardoned if I assume that had he known what we now know of the effects of micro-organisms upon wounds and in the blood-current he would have readily accepted the views which we now accept, that inflammation is an infective process brought about entirely by micro-organisms introduced from without and that, instead of helping, it either retards or arrests repair. Under these circumstances Hunter would have been ready to adopt the view which must ere long be generally accepted and consequently taught: that repair and inflammation are not only not identical, but incompatible; that repair is a *constructive* physiological process and resembles closely that of development and growth; that inflammation is a *destructive* pathological process, and is entirely due to the presence of micro-organisms introduced from without; that when inflammation attacks a wound in the process of repair it at first checks repair and later on brings about disorganising changes, and when a part repairs after it has been the seat of inflammation it does so only when the inflammatory process has been arrested.

Under these circumstances, in the treatment of every wound inflammation is always to be guarded against and when present subdued, since it invariably acts as a disturbing influence in the process of repair. These remarks apply as much to the healing of a wound by "quick union," or Hunter's "first intention," as to one which heals by the "process of granulation, or Hunter's second intention," or to one by "scabbing," and, I ought to add, to the restoration of any part that is undergoing repair, and which has been the seat of the inflammatory process. In support of this view I should like to quote the words of Karl Roser of Marburg, an author who has well written upon this side of my subject, and who is likely to be listened to as a German professor: "The clean, not infected, wound heals without inflammation by first intention; the infected wound, on the contrary, heals by second intention with the appearances of inflammation. In the first case healing follows immediately after the injury. In the other case inflammation intervenes between injury and healing as a disturbing complication."[4]

These views of repair and the influence of inflammation on the reparative process which I have just formulated, and many of which I have taught for years,[5] are, I maintain, "Hunterian"; and, if Hunter had enjoyed the opportunities we have had of learning the true cause of inflammation from the works of Pasteur and Lister, I have not a shadow of a doubt that he would have accepted the conclusions as they have been presented to you. How far he approached our present views I will now proceed to demonstrate, and I shall do so, using his own words. As a leading quotation I will select one which not only embodies the whole principle of subcutaneous surgery, of which Hunter was the distinguished founder, but shows that if he had had an inkling of the true causes of inflammation how near to our present conclusions on repair and inflammation his would have been! Indeed, if we accept his sayings "that air will be injurious to man and animals by

[2] Buckle, History of Civilisation, vol. ii., p. 567.

[4] Entzündung und Heilung, 1886, Leipzig.

[5] Practice of Surgery.

its containing specific particles of contagion" and "that any cause that can obstruct the motion of the blood in the smaller vessels for a certain time will irritate and produce inflammation," we might fairly infer that such knowledge of inflammation and its causes was not far off. At any rate, with the knowledge he possessed he came to the following conclusions: "Mechanical injuries on sound parts may be divided into two heads: first, those which do *not* communicate externally with the air; and secondly, those which do. The effects of the first division—which do not communicate externally—on the constitution will differ according to the state of the constitution and the nature of the parts injured; if the power of healing in a part be strong, the part injured not vital, and the constitution not highly disposed to sympathy, *no material change* will take place in the constitution and the process of restoration will go on with only local effects." "Wounds which do communicate externally with the air commonly both inflame and suppurate." "The latter, when properly treated, may be brought back to a resemblance of the former, and so unite by primary healing or the first intention, by which inflammation and suppuration are prevented." "Primary healing takes its course without inflammation and is painless." "Wounds that are kept exposed do not granulate till inflammation is over." "In simple fractures union will take place independent of inflammation." "The absorption of blood when extravasated and the healing beneath the scab are both regarded as primary healing." In Hunter's recommendations as to the treatment of wounds the same general principles seem to be recognised, for he writes: "In the treatment of wounds, in order to facilitate the *natural process of healing*, little is to be done except removing impediments to the natural cure." He saw with the eye of the physiologist what the eye of the poet-dramatist had previously described:—

> "Let nature use her own maternal means,
> And we await to second, not disturb her."

With these apt quotations from Hunter's own writings and lectures, there can be no doubt as to his opinions: that repair and inflammation are not only not analogous processes, but that they are antagonistic; although from his want of knowledge as to the true cause of inflammation he had mixed the two processes together, and consequently had failed to make his opinions clear. It is to Hunter, therefore, more than to any man, that we are indebted for the recognition "*of nature's resources in the cure of disease.*" "He saw," wrote one of our latest departed friends, Le Gros Clark, "that nature was not to be regarded as an enemy to be combated, but as a friend with whom we may take counsel and whose efforts it is our duty to watch and assist rather than to thwart and obstruct."[6] It is also owing to the information he laid before us in his great physiological doctrines of repair that our present knowledge of the treatment of wounds by "rest" is unquestionably based. "The first and great requisite for the restoration of the injured parts is rest, as it allows that action which is necessary for repair of injured parts to go on without interruption, and as injuries often excite more action than is required rest becomes still more necessary." "In sprains of joints," he said, "rest is the first principle." "In diseases of joints rest cannot be too much insisted on." "In the treatment of fractures the rest of the bone is the great object we have to aim at. The limb, if possible, should never be moved." "A horizontal position, with temperance, should be the first thing advised in the cure of sore legs." Hunter saw also that rest from action is an element to appreciate even in disease, for he maintained "that everything in nature that has power of action has two kinds of motion, exerted alternately, and a state of rest." He saw, however, further still, and said that "life cannot go on always in the same state. It must have its stated seasons of rest and action. Hence, even in the most continued diseases, and when the cause is unvaried, there will be intervals of alleviation and exacerbation." "Nature," he adds, "observing her general law, rests even in disease."

These are the great principles of practice which John Hunter laid down for our guidance and the benefit of suffering humanity. They are so intimately associated with our own daily duties that it is well for us, perhaps, to be occasionally reminded as to whom we are indebted for them. The same remarks are likewise applicable to some other points of practice, for Hunter's acts were in many ways far in advance of his contemporaries. I have but time to bring a few of them before you. In making a diagnosis of disease with the view of treatment, he advised that the history of everything relative to the disease should be known, as symptoms alone are often not enough to direct us. We should therefore get the history of it and of prior diseases, of peculiarities of constitution, manner of living, and even inquire into the temper and mind of the patient. In his investigations and treatment of disease he must often have thought, if he had not expressed the thought in words, what has been well said by a modern thinker, my friend Dr. Pye-Smith, "that morbid processes are strictly physiological and that the origin and condition of diseases and of death must be sought by the same methods as the origin and condition of health and life."[7] Hunter's remarks on hereditary dispositions are particularly good: "It very rarely happens that a constitution is perfectly free from a tendency to some disease. The basis of diseases is frequently laid by accident, not by producing them immediately or naturally, but by exciting some susceptibility of the constitution, or of a part, into a disposition for a disease which may be latent. Disease is not hereditary, it is only the susceptibility which is so; the cause is necessary to bring it into action. It may," he adds, "be hereditary for a man to be irritable and passionate, but he will not go into a passion without some accidental cause. In some the susceptibility to a disease is very strong; then it requires only a very slight cause to bring it into action. There must, however, always be an immediate cause to stimulate the susceptibility into action." In the treatment of disease by stimulants he was very cautious. "Wine," he said, "does harm if it increases the action of the machine without giving strength, a thing carefully to be avoided. However, I have not yet made up my mind about wine." "Wine," he adds in another place, "does harm in hectic cases, increasing circulation, calling up action without strengthening, but I am not quite determined on this point. I drink no wine myself and seldom recommend it to others." I hope the total abstainers will use this information with discretion! "Women," he adds, "live a much more temperate life than men, which certainly must have considerable influence, both with regard to resisting and curing diseases."

In practical surgery many most important improvements must be attributed to Hunter. For his improved treatment of aneurysm enough has been said. Stanley stamped it "as the fairest of the fruits of Hunter's genius," and yet Hunter never wrote one line to recommend the operation. The first account of the operation was given by Home in a paper published in 1793 in the first volume of the Transactions of the Society for the Improvement of Medical and Chirurgical Knowledge, and probably during Hunter's lifetime, but in 1786, a year after his operation, Hunter said: "In December, 1785, I performed the operation in a manner different from that usually practised, and with success. The particulars are found in the *London Medical Journal*. I would only observe that in future I would advise only tying the artery in one part, and not to endeavour to unite the wound by the first intention." For many others he has never had credit, and amongst them I must place his views upon the important question of operation for cancer. "I consider," said Hunter, "that the bad success arising from amputation of the breast for cancer arose from not taking away enough. I resolved to take away much more than seemed necessary. The surgeons round me thought that I did more than what was necessary." "Perhaps it would be best always to remove the whole breast when there appears much disease, or even when the disease is not very extensive." "Whenever a gland appears tumid or indurated in the neighbourhood of a cancer, the whole that appears diseased should be removed. *Unless the whole of the diseased part can be removed* the operation for cancer will avail but little. This always should be kept in view. An inattention to these circumstances has in my opinion brought the operation into disgrace and caused people to suppose the disease to be a constitutional one." Hunter evidently regarded cancer as a local disease and advocated the practice, now generally adopted, of a free removal of the local tumour with the removal of all diseased glands. He advised "that varicose veins should be dissected out where this can conveniently be done"; and for the eradication of hydrophobia he said, "mad dogs are chiefly in England. I really think that every dog here should be killed and new ones bought, or that they should perform quarantine."

To conclude my references to Hunter's works I must refer

[6] Hunterian Oration, 1875.

[7] Lumleian Lecture, II., 1892.

to his observations on fossils, for they are greatly to his credit as an honest thinker. Travers first brought the question fully before this College in his oration for 1838, when he showed how Hunter had pointed out the evidence which fossils afford of the alteration of the condition of the earth's surface, as dry land submerged; and by frequent allusions to the many thousand years which must have elapsed whilst the earth was the theatre of these changes he seems to have fully appreciated the necessity of an ample allowance of past time to account philosophically for the changes in question. Mr. Clift, who transcribed Hunter's paper, told Mr. Travers that it was originally dictated, not "many thousand years," but "many thousand centuries," and he (Clift) had the copy of the letter of the friend of Hunter (the late Major Rennell), who advised the change of expression in conformity with the popular notion of the world's age and the religious prejudices of the period.

With these references to Hunter as a geologist, biologist, physiologist, pathologist and surgeon I must bring my lecture to a close, and in doing so express a hope that we may continue in all gratitude to be inspired with the memory of John Hunter, and, as heretofore, periodically raise our voices in his honour, although it may be said with truth that in the works of all who have followed his footsteps and studied in his spirit he yet speaketh. Let this Royal College of Surgeons of England, which placed a tablet over the grave of John Hunter in Westminster Abbey, continue to repeat the record there engraved of their admiration of his genius as a gifted interpreter of the divine power and wisdom that works in the laws of organic life, and their grateful veneration for services to mankind as the father of scientific surgery. The harvest which has already been reaped from the good seed which was sown by Hunter has been unrivalled, and the seed must be as fruitful in the future as in the past if the fields are rightly tilled by his followers. Should, however, the seed be choked or hidden for a time by weeds which have been sown by either the promoters of a passing fashion, the advocates of some taking and possibly erroneous theory, or of rank empiricism, Hunter's seed, if rightly nurtured, like mummy seeds when watered, will spring up with renewed vigour, to enlighten those who seek light, for it possesses a germinal principle of life which guarantees vitality.

An Address

ON THE

ANTISEPTIC MANAGEMENT OF WOUNDS.

Delivered at King's College Hospital in the London Post-Graduate Course, Jan. 18th, 1893,

BY SIR JOSEPH LISTER, BART., F.R.S.,
SURGEON EXTRAORDINARY TO THE QUEEN.

(*Concluded from p. 286.*)

AN external antiseptic dressing, to be ideally perfect, should have four essential qualities. It should contain some thoroughly trustworthy antiseptic ingredient; it should have that substance so stored up that it cannot be dissipated to a dangerous degree before the dressing is changed; it should be entirely unirritating; and it should be capable of freely absorbing any blood and serum that may ooze from the wound.

The carbolic gauze which we formerly used did, indeed, contain a very efficient antiseptic; but this, being volatile, was perpetually flying off in spite of our endeavours to fix it, and it was a matter of uncertainty in how many days it might have so far disappeared from the dressing as to leave it untrustworthy. Carbolic acid had also this disadvantage as an element of an external dressing that, acting, as we have seen, with peculiar energy on the epidermis, it interfered seriously with cicatrisation, and we were obliged to interpose what we termed a "protective" to shield the healing wound from its action; and this gauze, containing resin for the purpose of fixing the carbolic acid, was not a very good absorber of blood and serum. Carbolic gauze, then, was not an ideally perfect dressing.

Corrosive sublimate had the advantage over carbolic acid of not being volatile; but it was readily washed out of gauze or wool charged with it, and under some circumstances it proved very irritating. The discharge, passing from one part of the dressing to another, took up more and more of the bichloride in its passage, and sometimes became so strong a solution of the salt as to cause vesication. I endeavoured to remedy these defects by combining the bichloride with the albumen of the serum of horse's blood[1]; but though the sero-sublimate gauze answered its purpose, in so far that it contained the bichloride better stored up and in a less irritating form, it had inconveniences, especially as regarded its preparation, which induced me to abandon it.

The agent which we have found the most satisfactory as the antiseptic ingredient of the dressing is the double cyanide of mercury and zinc.[2] Cyanide of mercury, while it has powerful antiseptic properties, is very soluble and highly irritating; but the combination of cyanide of zinc with it has the same sort of effect, but in a much higher degree, as the albumen of the sero-sublimate gauze had upon the bichloride. The combination with zinc keeps the cyanide of mercury from being dissolved away, and also prevents it from irritating. It is, so to speak, chained down by the cyanide of zinc with which it is combined. The double salt is very little soluble in blood serum, requiring between two and three thousand parts to dissolve it; and thus a small quantity of it will last a long time in spite of a free flow of discharge through it. It thus fulfils the condition of persistent storage. It is at the same time practically unirritating; wounds heal under its immediate contact without the necessity for a protective layer interposed. Then as to the essential question of its antiseptic virtues. Small as is the quantity which serum dissolves, it proves amply sufficient to prevent bacteric development. Thus in one experiment some serum of horse's blood containing $\frac{1}{2500}$ part of the salt remained clear and odourless for more than a fortnight at the temperature of the body in spite of inoculation with putrid material, and even $\frac{1}{5000}$ part prevented all growth for ten days. When mixed with serum and corpuscles, it prevents putrefaction in smaller quantity than any other antiseptic with which I am acquainted. The greater the amount of albuminoid substances in any solution, the more severely is the antiseptic tested; and when the red corpuscles are mingled with the serum, as is the case in the first twenty-four hours after the infliction of a wound, a much larger amount of the antiseptic is needed than with serum only. Thus four times more corrosive sublimate is required to prevent putrefaction in serum and corpuscles than in serum. Now, the double cyanide answers the purpose in half the quantity that is necessary with corrosive sublimate. As an illustration of the practical value of this material, I may mention a single experiment not hitherto published. I packed a piece of glass tube with gauze charged with 3 per cent. of the double salt and poured into it serum and corpuscles obtained by whipping pig's blood. I then inoculated one end of the saturated gauze with a drop of septic serum and kept it at the temperature of the body, with provision for preventing evaporation. After the lapse of five days I found the entire mass of gauze pure in odour and without bacteric development, as tested by microscopic examination of stained cover-glass preparations of the contained blood. Meanwhile a piece of unprepared gauze similarly treated showed bacteric development within twenty-four hours.

But here I must remind you of the essential difference, which must always be kept in view in considering antiseptic agents, between germicidal and inhibitory power; that is to say, between the capability of destroying the life of microbes and that of preventing their growth while the agent remains in contact with them. These two properties are by no means similarly proportioned to each other in all antiseptics. Thus cyanide of mercury is far superior to the bichloride in inhibitory power, but very inferior to it as a germicide; and the double cyanide of mercury and zinc, while admirable as an inhibitor, is very feeble as a germicide; so that we can have no security that materials charged with it may not contain living organisms. Hence if gauze charged with the double cyanide were applied dry to a wound, the time might come when, if the discharge were free, the salt, in spite of its slight solubility, might be

[1] THE LANCET, Oct. 25th, 1884.

[2] This is a double salt of a very peculiar constitution. It has been specially investigated by Professor Dunstan, who concludes that it has the following formula: $4ZnCy_2.HgCy_2$. See Trans. Chem. Soc., 1892, p. 666. The best way of preparing it was described by Professor Dunstan in the Pharmaceutical Journal, Third Series, vol. XX., No. 65

all washed out of the deepest parts of the dressing; and as soon as this should be the case, living microbes contained in it would be free to develop towards the wound. In order to guard against this risk we treat the gauze before using it with a reliable germicide. That which we now use for the purpose is the 1 in 20 solution of carbolic acid, which, besides being thoroughly effective, has the further advantage that it soon flies off from the dressing and leaves nothing in contact with the wound but the unirritating double cyanide and cotton fabric.

And now I wish to correct a mistake I made in a former publication. For the purpose of destroying any microbes that there might be in the gauze I recommended a solution of corrosive sublimate 1 in 4000 Now we have seen that the 1 in 4000 sublimate lotion is not nearly so powerful as a germicide as we then supposed. But it further appears that such power as it possesses is almost entirely lost as soon as the bichloride comes in contact with the cyanide of mercury and zinc, when a curious soluble triple compound[3] is formed, which has extremely slight germicidal action.[4] The triple salt seems also to be highly irritating; and thus when we used the bichloride of mercury, we failed almost entirely to obtain the object for which we employed it, and at the same time lost some of the goodness of the double cyanide, part of which was washed out in the process, while the resulting solution might cause troublesome irritation. Soon after I first described this dressing a surgeon at one of our hospitals came to me and said he had been using it and found great inconvenience from it. He had applied it to a scalp wound, and the whole of the skin covered by the dressing was excoriated. I found he had applied it soaking wet with bichloride lotion, and we are now able to understand the irritation which resulted.

It is quite unnecessary to have the gauze wet with the 1 in 20 carbolic lotion; mere dampness is sufficient. It may be conveniently moistened as follows. The gauze is commonly sold in pieces of three or six yards, folded lengthwise in eight layers. These are unrolled and half the number to be moistened are sprinkled roughly with the lotion. The wet and dry pieces are then superposed alternately and the whole rolled firmly together, and in a few minutes the entire mass will be uniformly damp. This may be done by a nurse, who then folds the gauze up in a piece of mackintosh cloth to prevent evaporation; and if the precaution is taken of turning over the edge of the jaconet so as to prevent the cotton from coming in contact with the gauze, and abstracting moisture by capillary attraction, it will remain damp for weeks together. Used in this way the double cyanide gauze may be absolutely trusted for excluding mischievous microbes, and we have seen that it contains the antiseptic element excellently stored up and that it does not irritate; and when I add that it is all that can be desired in absorbing power you will see that it approaches very closely to our ideal. Having now employed it constantly for over four years, both in hospital and in private practice, with thoroughly satisfactory results, I feel entire confidence in recommending it to you.

Here is a sample of the gauze ready for use. It is, you observe, of mauve colour, whereas the pure cyanide of mercury and zinc is a white impalpable powder. I have fully explained elsewhere the reasons for using a dye,[5] but I may here shortly recapitulate them. When the pure salt is diffused in water and a piece of gauze is charged by drawing it through the liquid and dried, it is found that the powder dusts out of the gauze on the slightest touch and irritates the nostrils extremely. I first remedied this defect by means of starch; and having observed that starch in solution in water becomes attached to the particles of the double salt and completely precipitated with it, it occurred to me that perhaps some colouring matter might behave in the same manner as the starch, and that thus it might be possible to dye the colourless salt and so have the means of judging, by the tint of the gauze charged with it, whether or not it was uniformly distributed in the fabric. I found on trial that various dyes did indeed behave as I hoped, including colouring matters so different as Prussian blue, logwood and various aniline dyes. But, what I had not at all anticipated, it turned out that in the case of some of these dyes, when the coloured precipitate was diffused in water and the gauze was drawn through the mixture and dried, without the use of any starch, the objectionable dusting was avoided. The particles of dye, though in extremely small proportion to those of the salt, attached them, as it would appear, to the fabric.

When I last published on the subject,[6] I recommended hæmatoxylin for this purpose. But I have since ascertained that the effect is produced still more satisfactorily by an aniline dye, the hydrochlorate of mauveine, known in commerce by the name of purified rosolane.[7] I have here a sample of the mauve-coloured powder, the dyed cyanide. For charging gauze it is diffused with pestle and mortar in 1 in 20 solution of carbolic acid in the proportion of about thirty grains to a pint; and the gauze, which must be of thoroughly absorbent quality, is drawn, in a thickness of about eight layers, through the liquid, which is conveniently placed in a trough having a bar near its lower part, beneath which the gauze is made to pass, care being taken that the liquid is kept perpetually stirred to prevent precipitation of the salt. The gauze is then hung up to dry at the temperature of the air. The carbolic lotion is used in preference to water, both because the powder is very much more easily diffused in it and because it is desirable that any dirty material which the gauze may happen to contain may be sterilised. A very cheap kind of carbolic acid will answer, and the solution that drains from the gauze when it is hung up may be used again for the same purpose. It thus scarcely adds to the expense of the preparation.

This is a very simple process. For a whole year I prepared my own gauze, for use in hospital as well as in private practice, before I had satisfied myself completely as to its value. For hospital use I would advise that the gauze should be prepared in the institution, so as to save the manufacturer's charges. In that case it may be taken down and wrapped in mackintosh when only partly dry, avoiding the trouble to the nurses in moistening it.

Gauze may also be easily charged at a few minutes' notice for emergency in private practice. I have here a six-yard piece of unprepared absorbent gauze folded lengthwise in eight layers. I soak this thoroughly with 1 in 20 carbolic lotion, and dust some of the powder roughly over one surface with a pepper-box. I then roll it together, and kneading it for a minute or two with the fingers produce, as you see, a sufficiently uniform diffusion of the salt throughout the mass, as indicated by the colour.[8] If this were done by a nurse before the commencement of an operation, and the wet gauze were wrapped in a folded sheet to absorb redundant moisture, it would be ready for use when required. A six-yard piece would be an ample dressing for many cases. Now I see by the amount that has gone from the pepper-box that not more than one-fifth of an ounce has been used, and as the dyed cyanide is supplied at 20*s.* per pound, this implies a cost of only 3*d.*, so that it cannot be regarded as expensive.[9] If you have no absorbent gauze at your disposal, linen rags, which are excellent in absorbing quality, may be quite well charged in a similar manner. This old towel which has been so prepared, if folded a few times, would make a perfectly satisfactory dressing. Bandages which it is desirable to render efficiently antiseptic, such as one that is to be applied next the skin for keeping down the soft parts in a stump after amputation of the thigh, may be charged on the same principle.

When a free discharge is anticipated, we apply a piece of thin mackintosh, sponged with carbolic lotion, over the exterior of the dressing, to prevent the blood and serum from passing directly through it. This arrangement no doubt interferes somewhat with the inspissation of the discharges by evaporation, but this is a matter of indifference when the dressings are efficiently antiseptic.

There is another use to which the dyed cyanide powder may be often advantageously put—namely, treating it with

[3] See Varet, Comptes Rendus, 1888, vol cvi., p. 1080.

[4] For the determination of this fact I am indebted to my colleague Professor Crookshank.

[5] THE LANCET, Jan. 4th, 1890.

[6] Vide loc. cit.

[7] This dye may be obtained from Messrs. Meister, Lucius and Brünig of Hoechst-on-Main. I may here publicly express my thanks to Mr. Perkin, to whom the world is indebted for the aniline dyes, for his kindness in ascertaining for me the chemical composition of rosolane. It is used in quantity equal to ½ per cent. of the weight of the double cyanide, and is applied in watery solution, in which the salt, after being freed from excess of cyanide of mercury by repeated washing, but before it has been dried, is thoroughly diffused by stirring. The salt as it precipitates carries the dye down with it and is afterwards dried at a moderate temperature.

[8] A pair of leather gloves may be worn to avoid staining of the hands; or the dye may be washed from the fingers with spirit of wine.

[9] I found on weighing this piece of gauze when it was dry that it was quite needlessly heavily charged, containing 7 per cent. of the salt instead of 3 per cent., which is that ordinarily used. Thus the salt required for such a dressing does not really cost 1½*d.*

enough of the 1 in 20 carbolic lotion to make a sort of soft mud or cream which may be applied with a camel's hair brush to parts where there is very little space between the wound and some source of septic contamination. I have by this means been repeatedly able to avoid suppuration in the vicinity of the anus, as I otherwise might have failed to do. The store of the antiseptic salt upon the skin prevents the microbes from working their way into the wound under the narrow strip of dressing alone available. There are also situations, such as the pubes, where the cyanide cream applied to the hairs converts them with great advantage into a part of the antiseptic dressing.

It may be asked how it was that I obtained uniformly good results when I used corrosive sublimate solution for the purpose of producing a germicidal effect upon the gauze. For I do not exaggerate when I say that during nearly two years in which I followed this practice I did not meet with a septic failure, when I had an unbroken skin to deal with and a fair field around for the dressing. This success was no doubt partly due to the slight solubility of the double salt, preventing it from being washed out of the deeper parts of the gauze. But I attribute it also to another circumstance. I invariably washed a substantial mass of the gauze which was to be applied next the wound in 1 in 20 carbolic lotion, in order to get rid of the irritating bichloride which it contained. I thus, though unintentionally, effectually sterilised not only this portion of the gauze but also neighbouring parts into which the redundant carbolic liquid soaked. And this mode of procedure, though not so perfect as the systematic moistening of the entire mass, is a rough-and-ready way of attaining much the same result.

In changing the dressings we make it an invariable rule to cover the wound with something reliably antiseptic before washing surrounding impure parts, so as to avoid the chance of defiling the wound with them. For these washings I use the 1 in 40 carbolic lotion. As to the times for changing the dressings, it is no doubt true that that which is applied immediately after the operation might in most cases be left untouched for several days. Nevertheless, when discharge is free, I prefer as a rule to remove the first dressing when the first twenty-four hours have passed. We thus get rid of the serum and corpuscles, which, while they constitute the largest amount of discharge which occurs in the case, test, as we have seen, the antiseptic dressings the most severely. The discharge being still moist near the wound at this period, the gauze is lifted from it without disturbing it in the slightest degree; and I never knew a patient fail to express himself as feeling more comfortable when the first dressing had been changed. There are, however, special cases, like a stump after amputation of the thigh, where an exception may be made on account of the disturbance of the wound that the changing of the dressing would involve.

In conclusion, I may remark that it pleases me, as the years pass, to see the hope which I expressed at the International Congress in London eleven years ago in course of fulfilment—namely, that the use of the antiseptic system would gradually spread by leavening action throughout the world. At the same time I am sorry sometimes to observe that unnecessary trouble is often taken in some directions whilst essential points are disregarded in others; so that with the best intentions the best results are not always obtained. I venture to hope that this address may be of some use to you in directing your attention to the essential conditions of success.

FRENCH HOSPITAL AND DISPENSARY.—The twenty-fifth annual dinner in aid of the funds of this institution took place at the Hôtel Métropole on Saturday last, his Excellency the French Ambassador in the chair, supported by the Lord Mayor and numerous representatives of the Corps Diplomatique. The chairman, alluding to the fact that he was presiding for the tenth consecutive year, announced that he had resigned the post of Ambassador, and was shortly about to return to France, but he assured them of his continued support of an institution which was in every respect worthy of their country. The annual report was read by the honorary secretary, Mr. Ernest Ruffer, who expressed the regret felt by the governing body of the hospital and by the French colony generally at M. Waddington's approaching departure. He pointed out the extraordinary development of the charity during the last ten years, and congratulated its supporters on its steadily increasing sphere of usefulness. He concluded by an allusion to the valuable services rendered by the secretary, M. Fernand Sorel, in promoting the success of the institution. The musical arrangements were carried out in the most satisfactory manner by M. Tito Matteo.

Clinical Lecture

ON

SYMPHYSIOTOMY AT THE CLINIQUE BAUDELOCQUE DURING 1892.

Delivered on Dec. 7th, 1892,

BY A. PINARD,

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Translated by special permission from the French.

BY J. B. HENDERSON, M.D. BRUX., L.R.C.P. & S. EDIN.

GENTLEMEN,—A year ago, on Dec. 7th, 1891, I began a lecture in this amphitheatre in the following way: "At the present time, when we find ourselves in the presence of a woman in labour having a contracted pelvis, and when we have proved, either by measurement and palpation alone or by the ineffectual application of forceps, the impossibility of the expulsion or the extraction of the fœtus by the natural way, we are reduced to choosing, in order that the woman may be delivered, between the two following methods: Either to destroy the head and so terminate the delivery by natural means, or to perform Cæsarean section." And after having calculated the results obtained by the partisans of the one method and the other I continued as follows: "Thus even to-day, in spite of the considerable progress realised during fifteen years, in the presence of a case such as I have already described, we are reduced either to perform an operation which may save the mother as it certainly kills the child, or to practise one which may save the child while endangering the life of the mother. Shall we always have to face this cruel alternative? Shall we be much longer condemned to the agony which one must endure in order to know what it is either to kill a healthy fœtus or to make the mother run the risks (which are still formidable) of the Cæsarean section? 'I hope not,' I said. I believe that this fatality may disappear, thanks to an operation—symphysiotomy—inaugurated in 1768 by one of our compatriots, a student in surgery named Sigault, and practised by him for the first time with success in 1777 on the wife of a soldier named Souchot. I can understand that this astonishes you; and you doubtless ask why to-day I place such great hopes on the revival of an operation which some of you know has been neglected for so long a time and of which some of you scarcely know the name." I then gave my reasons for thinking and speaking so, which are nothing more than the solution of the following three questions: 1. Can one by symphysiotomy obtain, without any grave lesion, a notable enlargement of the pelvis? What can be the extent of this enlargement? 2. Is symphysiotomy within reach of all accoucheurs and how ought it to be practised? 3. What are the sequelæ of the operation as regards consolidation of the pelvis, while standing and walking and in subsequent pregnancies? I ended by saying: "If I am not mistaken symphysiotomy, which had the misfortune to be suggested by a man without authority in obstetrics, by trusting in antisepsis, with the greater information which we now possess on contractions of the pelvis, guided by the sureness of our means of exploration, and profiting by the perfection of our methods of operation, will become, as M. Tarnier has predicted, the complement of many cases of premature delivery and will be substituted for embryotomy and Cæsarean section in many other cases, only leaving for the latter a very restricted field where they may reign without rival."

Well, gentlemen, I wish to enquire with you whether, during the year which has just passed since I spoke these words, my hopes have been deceived or realised. The moment has come for us to draw up our balance-sheet and see what exactly has happened as regards symphysiotomy at the Clinique Baudelocque during the year 1892. First, it is with a satisfaction I do not attempt to conceal that I am able to say that in 1800 cases of delivery during the year I have not once had to practise embryotomy on a living fœtus. Still, we have had to struggle with a considerable number of cases of contracted pelvis. In all the cases we have only performed conservative operations. I only wish to speak to-day, however, of the cases of symphysiotomy, to show them to you and to let you

appreciate the results. Thirteen symphysiotomies have been practised in the Clinique Baudelocque during 1892—eight by myself, the rest by my assistants. I did the first on Feb. 4th; the last was done on Nov. 14th. I will show you the thirteen women, for they have been very willing to come back to-day. In this way you may judge of the immediate and subsequent results of symphysiotomy. I will present them in chronological order, giving with each a short *résumé* of the notes of the case.

CASE 1. Feb. 4th, 1892 (Pinard).—B——, aged thirty-two. She has had two confinements. The pelvis was canaliculate; the promonto-subpubic diameter 9·7 cm. The first confinement took place on July 13th, 1886, at term. The presentation was of the shoulder; there was prolapse of the cord; the fœtus was dead and macerated. Embryotomy was performed. The head could only be extracted after basiotripsy. The patient went out thirty-two days afterwards. The second confinement took place on Feb. 3rd, 1892. The last monthly period was from May 1st to 6th, 1891. The fundus uteri was 36 cm. above the upper border of the symphysis pubis. There was hydramnios; the fœtus was mobile, with a tendency to present by the breech—it appeared to be large. Mensurative palpation showed a considerable disproportion. Champetier's bag (*ballon Champetier*) was introduced at 7.30 P.M. On Feb. 3rd at 12.15 (midnight) dilatation was complete and expulsion of the bag imminent. At 12.30 A.M. chloroform was given and the bag extracted, the pouch of membranes being found intact. Many unsuccessful attempts were made to bring down the head by external manipulation, the fœtus presenting by the breech in the right transverse diameter. M. Pinard then decided to extract by the feet after a preliminary symphysiotomy. At 12.50 A.M. the incision was begun, spontaneous separation after symphysiotomy of 1 cm. being effected, followed at 1.15 A.M. by artificial rupture of membranes and beginning of extraction. At 1.20 A.M. the breech was outside the vulva. At 1.24 the head was extracted by Champetier's method, the extraction being difficult, accompanied by two jerks, the latter of which was the more noticeable. The separation was not measured. Delivery was effected. At 1.45 A.M. the parts were sutured and the dressings fixed by a plaster bandage. The child weighed 3350 grm. (over 7 lb.) and measured 52 cm. It was apparently dead, but was quickly resuscitated by simple friction. There was deep depression of the right parietal bone posteriorly, so that, while the biparietal measurement was 9·8 cm., the diameter, which went from the bottom of the depression to the protuberance on the anterior portion of the parietal bone, measured only 8·9 cm. The child died on Feb. 6th (third day), having presented the classical symptoms of meningeal hæmorrhage. (The head is preserved in the museum.) The puerperal condition was normal; only once on the fifth day did the temperature reach 100·6° F. (38·2° C.). There was union by first intention. The patient rose on the twenty-first day and was able to walk without pain. There was no abnormal mobility. She was seen on Dec. 7th, when there was found to be no trouble in walking or micturition.

CASE 2. Feb. 22nd, 1892 (Pinard).—G——, primipara. The pelvis was flattened; the promontory accessible. The confinement took place at term. She was admitted at 9.15 P.M. on Feb. 24th, the os being the size of a franc piece; the membranes were intact and tense. The fundus uteri rose to 47 cm. above the upper border of the symphysis pubis. The ovum was large; there was presentation of the vertex in the left transverse diameter; not engaged. The fœtus was living. There was artificial rupture of the membranes at 10.15 P.M. on Feb. 24; 400 cc. of liquid escaped. Complete dilatation took place at 4.30 A.M. On the 25th the head was found to be fixed, but not engaged. At 7.30 A.M., the head not being yet engaged in spite of very good contractions, M. Lepage made a first application of the forceps under chloroform. Traction was made during fifteen minutes without result. At 8.4 A.M. a second application of the forceps was made; the tractions lasted three minutes only; no progress. M. Pinard arrived at 9.30 A.M. Chloroform having been given, symphysiotomy (nineteen minutes) was performed, giving immediately after the section and spontaneously a separation of 1 cm., which the abduction of the thighs increased without difficulty to 3 cm. There was a third application of the forceps, when extraction was extremely easy in four minutes of a boy (living) weighing 4630 grm. (over 10 lb.), measuring 53½ cm. (20½ in.), of which the cephalic diameters were: Occipito-mental, 14·3 cm.; occipito-frontal, 12·7 cm.; sub-occipito-bregmatic, 10 cm.; sub-occipito-frontal, 11·3 cm.; biparietal, 9·3 cm.; bitemporal, 8·7 cm. During the engagement and descent of the head the separation of the pubes reached 6·1 cm. The child weighed on March 15th 5970 grm. (over 13 lb.). The puerperal condition was normal; only four times—viz., on the third, fifth, tenth and fourteenth days—did the temperature reach 38° C. (100·2° F.). There was union by first intention. The patient rose on the thirty-third day and was able to walk without pain; there was no abnormal mobility. She was seen on Dec. 7th, when there was no trouble in walking or micturition. The child is living and healthy, and at present with a nurse.

CASE 3. March 23rd, 1892 (Pinard).—P——, aged thirty. She has had four confinements. The pelvis was annular; the promonto-subpubic diameter 9 cm. Her first confinement took place in 1887, at term. There was intervention after administration of ether; child stillborn. The second confinement took place in 1888, induced at eight months. The child died on the third day. The third confinement occurred in 1890, at term. There was an application of the forceps by M. Fochier, who extracted a boy weighing 3220 grm. (about 7 lb.), but having a biparietal diameter of only 7 cm. The child died after fifteen days. There was a fourth confinement on March 23rd, 1892 (Clinique Baudelocque). The last monthly period occurred June 30th to July 2nd, 1891. The fundus uteri rose to 36 cm. above the upper border of the symphysis. There was presentation of the vertex in the left transverse diameter (after external version and application of band). Tarnier's bag was introduced on March 21st, at 10.50 A.M.; the expulsion took place at 1 P.M. On the 23rd, at 5 A.M., Champetier's bag was introduced. At 11 A.M. dilatation was complete, when the bag was extracted under chloroform and the membranes ruptured. After an hour (12.15) M. Fochier made successively two oblique applications of Tarnier's forceps; then M. Pinard made a direct application—all without success. At 12.40 symphysiotomy was performed (seven minutes). The pubes separated spontaneously 1 cm.; by abduction of the thighs the separation was brought to 4·8 cm. At 12.50 a fourth application of the forceps was made, during which the separation amounted to 6½ cm. At 1 P.M. extraction was effected of a boy weighing 2730 grm. (over 5 lb.), whose cephalic diameters measured immediately after birth: Occipito-mental, 12·7 cm.; occipito-frontal, 11·8 cm.; sub-occipito-bregmatic, 10·4 cm.; sub-occipito-frontal, 10·6 cm.; biparietal, 9·7 cm.; bitemporal, 7·9 cm.; sub-mento-bregmatic, 9·5 cm. The child was born in a state of apparent death, but rapidly revived. The child weighed on April 15th 3000 grm. (6·6 lb.). The puerperal condition was normal. There was union by first intention. The patient rose on the twenty-ninth day, and was able to walk without pain; there was no abnormal mobility. She was seen on Dec. 7th, and had then no trouble in walking or micturition. The child is living and healthy.

These three women were presented to the Academy of Medicine at its meeting on May 21st, and I read the *résumé* of the cases at the meeting of the Obstetrical Society of France.

CASE 4. May 3rd, 1892 (Varnier).—R——, aged twenty-six; four confinements; height 1·46 m. (4 ft. 9½ in.). Pelvis rachitic, annular; promonto-subpubic diameter 9·8 cm. First confinement in 1886, terminated by embryotomy after two days' labour. Second confinement in 1887, induced at about eight months; terminated by version when dilatation complete (head, with prolapse of cord, hands and one foot); girl, born in a state of apparent death; revived without insufflation; weight 2400 grm. (under 5 lb.); died next day. Third confinement in 1890, induced at eight months; terminated by basiotripsy. Fourth confinement on May 3rd, 1892 (Clinique Baudelocque); last monthly period Aug. 3rd to 5th, 1891. The fundus uteri rose to 29 cm. above the upper border of the symphysis; presentation of the vertex in left transverse diameter. Considering the antecedents, M. Pinard decided to induce labour and to practise symphysiotomy before making any attempts at extraction. Champetier's bag was introduced on May 3rd at 5.40 A.M.; at 10.30 A.M. dilatation was complete; membranes intact; no prolapse; head in left transverse diameter not engaged. At 11.48 A.M. symphysiotomy was performed by M. Varnier. Spontaneous separation of 3 cm. occurred, followed by artificial rupture of membranes. At 11.58 A.M., on the application of forceps in the left transverse diameter, the extraction was easy (during which the separation did not increase more than half a finger's breadth) of a boy weighing 2130 grm. (about 4½ lb.), whose cephalic diameters were: Occipito-

mental, 15·4 cm.; occipito-frontal, 11·1 cm.; sub-occipito-bregmatic, 9·3 cm.; sub-occipito-frontal, 9·8 cm.; biparietal, 8·2 cm.; bitemporal, 7·5 cm. The child was born in a state of apparent death, but revived in two minutes without insufflation. He appeared feeble. He was placed in an incubator at 36° C. (96·8° F.). Breathing oppressed all day. On May 3rd there was cyanosis. He did not suck, but took and kept down milk which was given with a spoon. On May 4th he was in the same condition; the respiration was accelerated, the cyanosis persisted, and milk was rejected. He died on the 5th at 6 A.M. At the necropsy at 6 P.M. the weight was 1950 grm. (over 4 lb.); all the viscera appeared healthy; no fracture or fissure; Wormian bones. Puerperal condition pathological; abscess of left labium majus incised and drained on the seventeenth day; without any connexion with the operation wound, which united by first intention. The patient rose on the twenty-sixth day and walked without pain. She went out on June 23rd in perfect condition. When seen on Dec. 7th no trouble in walking or micturition was observed.

CASE 5. May 29th, 1892 (Pinard).—A——, aged thirty-eight; six confinements. Pelvis annular; promonto-subpubic diameter 9·3 cm. First confinement in 1885 at term, terminated by basiotripsy of the living fœtus after seventy-three hours of labour and an application of forceps made by M. Pinard. Weight of fœtus 3520 grm. (nearly 8 lb.). Second confinement in 1887, induced at seven months and a half. The child died during labour. The third confinement occurred in 1888, was induced at seven months and was terminated by an application of forceps at the entrance to the pelvis. The boy, weighing 2200 grm. (nearly 5 lb.), died during the night. Biparietal diameter 8·6 cm. The fourth and fifth pregnancies were miscarriages at two months and a half and three months respectively. The fourth confinement took place on May 29th, 1892, at the Clinique Baudelocque. Last monthly period occurred from Sept. 14th to 17th, 1891. Presentation of vertex, not engaged, in left transverse position. Considering the history M. Pinard decided to wait till term and practise symphysiotomy before making any attempts at extraction. Onset of labour was induced on May 28th at 5 A.M. by premature rupture of the membranes; dilatation was complete on the 29th at 6 A.M. At 10.10 A.M. symphysiotomy was performed by M. Pinard (ten minutes); spontaneous separation of 2·5 cm. At 10.38 A.M. the forceps were applied in the left transverse diameter, extraction being easy at 10.40 (during which the separation extended to 4·5 cm.) of a boy weighing 3110 grm. (over 6 lb.), crying at once and with the following cephalic diameters: Occipito-mental, 13·2 cm.; occipito-frontal, 11·5 cm.; sub-occipito-bregmatic, 10 cm.; sub-occipito-frontal, 10 cm.; biparietal, 9·1 cm.; bitemporal, 8·2 cm. The infant was suckled by the mother, assisted at first by a wet-nurse; he weighed when leaving the clinique, on the thirty-first day, 3850 grm. (over 8 lb.). Puerperal condition normal; only twice—the second and seventh day—did the temperature rise to 38° C. (100·6° F.). Union by first intention. The patient rose without permission on the sixteenth day, but experienced no bad result. She went out on the thirty-first day in perfect condition. When seen on Dec. 7th she appeared to have no trouble in walking or micturition. Child healthy.

CASE 6. June 29th, 1892 (Pinard).—F——, aged thirty-two; primipara; height 1·35 m. (4 ft. 5 in.). Pelvis generally contracted; promonto-subpubic diameter 9 cm. Last monthly period occurred from Oct. 9th to 12th, 1891. Presentation of vertex in left transverse position. On June 28th, considering the information furnished by palpation, by measurement of the promonto-subpubic diameter and by the exploration of the entire pelvis, M. Pinard decided to induce labour and to practise symphysiotomy before attempting to extract. Tarnier's bag was introduced at 10.30 A.M. on the 28th and Champetier's bag at 5.30 A.M. on the 29th. The membranes were ruptured; dilatation complete at 9 P.M. Extraction of the bag caused a tear of the left side of the vestibule, necessitating the application of two pressure forceps. At 9.15 P.M. symphysiotomy was performed by M. Pinard (three minutes); separation 3·5 cm. At 9.24 P.M., on the application of forceps in the left transverse diameter, easy extraction was effected at 9.42 P.M. (during which the separation amounted to 6·2 cm.) of a boy weighing 2720 grm. (over 5 lb.), crying at once and with the following cephalic diameters: Occipito-mental, 13 cm.; occipito-frontal, 11 cm.; sub-occipito-bregmatic, 10 cm.; sub-occipito-frontal, 10·3 cm.; biparietal, 9·4 cm.; bitemporal, 8·2 cm. Brought up by a wet-nurse, this child weighed when it left on the fifteenth day 4000 grm. (8·8 lb.). Puerperal condition normal. Union by first intention. The patient rose on the twentieth day and was able to walk without pain or difficulty. She is at present a nurse in the hospital. The child when seen on Dec. 7th was healthy.

CASE 7. July 7th, 1892 (Pinard).—A——, aged twenty-three, primipara; height, 1·42 metres (4 ft. 8 in.); pelvis annular; promonto-subpubic diameter 10·4 cm.; last monthly period from Sept. 25th to 30th, 1891; vertex presenting in left transverse position. On July 6th, considering the information furnished by palpation, M. Pinard induced labour with the aid of Tarnier's bag, which was replaced on the 7th at 4 A.M., by one of Champetier's bags. Dilatation was complete at 10.15 A.M. At 10.40 A.M., after manual exploration, symphysiotomy was performed by M. Pinard (seven minutes), with spontaneous separation of 1 cm. At 10.51 A.M. artificial rupture of membranes and application of forceps in left transverse position were followed by the extraction at 11.4 A.M. (during which the separation reached 5 cm.)—thanks to a second application of the forceps, the former threatening to slip—of a living boy weighing 3300 grm. (over 7 lb.), with the following cephalic diameters: Occipito-mental, 13 cm.; occipito-frontal, 12·2 cm.; sub-occipito-bregmatic, 11 cm.; sub-occipito-frontal, 12 cm.; biparietal, 10 cm.; bitemporal, 9 cm. Brought up by a wet-nurse, this child weighed when it left on Sept. 2nd 4340 grm. (about 9½ lb.). Puerperal condition slightly pathological, the temperature oscillating about 38·5° C. (101·4° F.) during the first seven days. Union by first intention. The patient rose on the twenty-fourth day and could walk without pain. When seen on Dec. 7th she had no trouble in walking or on micturition. Child healthy.

CASE 8. July 30th, 1892 (Lepage).—M——, aged twenty-six; two confinements; pelvis annular; promonto-subpubic diameter 9·7 cm. First confinement in 1887, at term, spontaneous, of a large child, now living and healthy. Second confinement at the Clinique Baudelocque on July 30th, 1892. Last monthly period from Oct. 1st to 5th, 1891. Vertex presentation in left transverse position; head not engaged. When admitted on July 30th, at 4.44 A.M., dilatation was nearly complete. Labour began on the 29th at 11 P.M.; membranes intact. At 6.45 A.M. artificial rupture of membranes. At 7 A.M. M. Lepage reports: "Dilatation complete; head very high in left transverse position; fluid green; prolapse of the cord; heart sounds dull and irregular." After an ineffectual application of the forceps (traction during twenty minutes), M. Pinard having been communicated with, M. Lepage performed symphysiotomy at 10 A.M. (thirteen minutes); the section of the symphysis was from below upwards, being followed by spontaneous separation of 26 mm. On the application of the forceps an easy extraction was effected at 10.18 A.M. (during which the separation reached 5 cm.) of a boy weighing 4000 grm. (8·8 lb.). He was born apparently dead, was insufflated and revived ten minutes afterwards, having the following cephalic diameters: Occipito-mental, 13·1 cm.; occipito-frontal, 11·5 cm.; sub-occipito-bregmatic, 9·8 cm.; sub-occipito-frontal, 11·3 cm.; biparietal, 9·5 cm.; bitemporal, 8·7 cm. Brought up by a wet-nurse, the child weighed when he left on Sept. 2nd 4090 grm. (nearly 9 lb.). Puerperal condition pathological; abscess of the right labium majus incised and drained on the tenth day without any connexion with the operation wound, which united by first intention. The patient rose on the thirtieth day. Was discharged on Nov. 5th in perfect condition. When seen on Dec. 7th no trouble in walking or micturition was noticed. Child healthy.

CASE 9. Sept. 13th, 1892 (Varnier).—B——. Two confinements. Height 1·39 metres (4 ft. 6½ in.); pelvis rachitic annular; promonto-subpubic diameter 9·2 cm. First confinement in 1889 at term terminated by basiotripsy of a dead fœtus. The patient was brought in on a stretcher, with dilatation complete; membranes ruptured; prolapse of cord and of anterior arm; head not engaged in left transverse diameter. M. Varnier had to compress the head twice. The extraction only became possible after putting back the anterior arm and it was necessary to practise Ribemont's method to extract the trunk. Weight of the child 3350 grm. (over 7 lb.). Second confinement Sept. 13th, 1892, at the Clinique Baudelocque. Last monthly period Dec. 10th to 15th, 1891. The patient entered the hospital on July 26th pregnant about seven months; fœtus living; no fixed presentation; the head was retained below by the aid of the "entocique" binder from Aug. 15th. At this time the palpation showed that there was a disproportion. M. Pinard left for his holiday and gave M. Varnier (his assistant)

the responsibility of fixing the date for symphysiotomy. M. Varnier decided to wait till term. Labour began on Sept. 12th at 7 P.M.; dilatation was complete at 5.40 P.M.; symphysiotomy was performed by M. Varnier (six minutes); separation to 3·5 cm. was induced by abduction of the thighs; spontaneous rupture of membranes; at 5.49 P.M. the application of forceps in the left transverse diameter was followed by extraction at 5.55 (during which the separation reached 7 cm.) of a boy weighing 3200 grm. (7 lb.), who cried at once and had the following cephalic diameters: Occipito-mental, 12·5 cm.; sub-occipito-bregmatic, 9·8 cm.; sub-occipito-frontal, 11·4 cm.; biparietal, 9·5 cm.; bitemporal, 8·5 cm.; circumference, sub-occipito-bregmatic, 34·0 cm.; circumference, sub-occipito-frontal, 36 cm. Brought up by a wet nurse, this child weighed when discharged on Oct. 16th 3630 grm. (over 8 lb.). Puerperal condition: Three times only, on the third, fourth and fifth days, did the temperature reach 38·5° C. (101·3° F.). There was union by first intention. The patient rose on the nineteenth day and was able to walk alone and without pain. It is to be noted that during the extraction there was produced (to the left of the urethra, which was intact as catheterism proved) a longitudinal tear in the anterior wall of the vagina, which allowed the index-finger to pass from the vagina to between the separated pubes. The operation wound communicated with the vagina, which was tamponed with iodoform gauze left in position for three days. The patient left on Oct. 16th in perfect condition. There was no abnormal mobility, or trouble in walking or micturating; the vaginal cicatrix could be clearly felt by the finger, and was not painful; when seen on Dec. 7th the same condition was observed; the child was healthy.

CASE 10. Oct. 1st, 1892 (Pinard).—F——, aged twenty-five. The following are the notes: Two confinements; pelvis flat; promonto-subpubic diameter 10 cm. First confinement in 1891; albuminuria and eclampsia; twins; extraction by the feet, the children being alive; one died on the fourteenth day and the other at four months; one weighed 2300 grm. (5 lb.), biparietal 8·5 cm.; the other 1980 grm. (over 4 lb.), biparietal 8·4 cm. Second confinement Oct. 1st, 1892 (Clinique Baudelocque); last monthly period Dec. 15th to 18th, 1891; presentation of the vertex, not engaged, in left transverse position; labour began on Sept. 29th at 7 P.M.; at 9 P.M. on Oct. 1st, dilatation having remained stationary for twelve hours (os the size of a five franc piece), the membranes were ruptured; the head scarcely engaged, very much inclined on the posterior parietal region midway between flexion and extension; M. Varnier applied a Champetier's bag, and when the dilatation was complete, after extraction of the bag distended to the maximum, he applied the forceps in the left transverse diameter, which only accentuated the deflexion; he then made a second application of the forceps; flexion was obtained, but in spite of powerful traction no engagement was produced; not wishing to make a forcible application, M. Varnier consulted M. Pinard, who at 10.50 P.M., things being still in the same condition, performed symphysiotomy (twelve minutes), followed by immediate separation to 3 cm.; at 11.9 P.M., on the application of the forceps in the left transverse diameter, easy extraction was effected (during which separation amounted to 4·5 cm.) of a boy weighing 3220 grm. (7 lb.), with the following cephalic diameters: Sub-occipito-bregmatic, 9·3 cm.; sub-occipito-frontal, 10·6 cm.; biparietal, 9 cm.; bitemporal, 7·8 cm.; circumference—sub-occipito-bregmatic, 31 cm.; sub-occipito-frontal, 32 cm.; brought up by a wet-nurse, the child weighed when he left 3420 grm. (nearly 7 lb.); puerperal condition normal; union by first intention; the patient rose on the nineteenth day, walking alone and very well; she left on Nov. 6th in perfect condition; when seen on Dec. 7th she had no trouble in walking or on micturition; child healthy.

CASE 11. Oct. 6th, 1892 (Pinard).—B.——, aged twenty-eight. The following are the notes: Two confinements; pelvis rachitic, annular; promonto-subpubic diameter 10 cm. First confinement in 1889, at term, terminated by an application of the forceps; the child died on the twenty-seventh day of convulsions, bearing still the traces of the forceps. Second confinement on Oct. 6th, 1892 (Clinique Baudelocque); last monthly period, Dec. 26th to 29th, 1891; presentation of the vertex, not engaged, in left transverse position; labour began on Oct. 5th at 3 A.M.; spontaneous rupture of membranes at 7.20 P.M.; dilatation complete at 11.55 P.M.; the forceps were applied in left transverse diameter at the pelvic entrance by Dr. Wallich, who, in spite of energetic traction, could not engage the head; after making a manual examination, M. Varnier, not wishing to make a second application which would involve force, consulted M. Pinard, who, being exactly informed as to the condition of the mother and fœtus, advised delay; at 10 A.M., the temperature being 38 8° C. (102° F.) and things being still at the same point, M. Pinard performed symphysiotomy (two minutes) resulting in immediate separating to 3 cm.; on the application of the forceps in the left transverse diameter extraction was easily made at 10.25 A.M. (during which the separation reached 5·8 cm.) of a boy weighing 3750 grm. (over 8 lb.); the infant was born apparently dead, but rapidly revived, and had the following cephalic diameters: Occipito-mental, 13·6 cm.; occipito-frontal, 11·0 cm.; sub-occipito-bregmatic, 10·3 cm.; sub-occipito-frontal, 11·5 cm.; biparietal, 8·4 cm.; bitemporal, 7·9 cm.; brought up by a wet-nurse, this child weighed when he left on Nov. 15th 4840 grm. (about 9½ lb.); puerperal condition: temperature oscillated about 38° C. (100·4° F.) without exceeding 38 5° C. (101·3° F.) during the first twelve days; union by first intention; the patient rose on the twenty-third day (Oct. 29th) and left on Nov. 15th in perfect condition; when seen on Dec. 7th, she had no trouble in walking or on micturition; child healthy.

CASE 12. Oct. 21st, 1892 (Wallich).—M——. The following notes were taken: Three confinements; pelvis annular; promonto-subpubic diameter 10·5 cm. First confinement spontaneous, at term; child living. Second confinement spontaneous, in 1889; child large, died during labour. Third confinement on Oct. 21st, 1892 (Clinique Baudelocque); last monthly period Jan. 4th to 8th; presentation of vertex, not engaged, in left transverse diameter; labour began on Oct. 19th, at 8 P.M.; spontaneous rupture of membranes at 1 A.M. on the 20th; at his morning visit on Oct. 20th M. Varnier reported that the head, which presented in left transverse diameter, not engaged in, an attitude midway between flexion and extension, was inclined on the anterior parietal region (obliquity of Naegele); fœtus large; dilatation equal to a five-franc piece; prognosis impossible, considering the obliquity of Naegele, the deflexion, the retraction of the pelvis and the size of the fœtus. If these things did not correct themselves it would be useless and dangerous to apply the forceps. Symphysiotomy would have to be performed at once if the head did not become engaged of itself. At 5 P.M. dilatation was complete; at 10 P.M. manual exploration showed that the head had not moved a line; at 11.50 P.M. M. Wallich performed symphysiotomy, which resulted in immediate separation (at 12.10) by abduction of the thighs to 2·5 cm.; a first application of the forceps having slipped (12.15) and there being a prolapse of the cord, M. Varnier made a second application rapidly in flexion; he succeeded in extracting at 12.20 (during which the separation reached 4·5 cm.) a boy weighing 3650 grm. (8 lb.), who was born apparently dead, but began to breathe at 12.27 and to cry at 12.31; the cephalic diameters were: Occipito-mental, 13·5 cm.; occipito-frontal, 12·3 cm.; sub-occipito-bregmatic, 10·4 cm.; sub-occipito-frontal, 11·4 cm.; biparietal, 9·5 cm.; bitemporal, 7·9 cm.; circumference—sub-occipito-bregmatic, 33·0 cm., sub-occipito-frontal, 35·0 cm.; this child, nourished by a wet-nurse, weighs now 4610 grm. (over 10 lb.); puerperal condition: temperature 38·6° C. (101·3° F.) during the fifth, sixth and seventh days; union by first intention; stitches removed on Oct. 29th; the patient rose on Nov. 8th (the nineteenth day); she walked well and without pain till Nov. 16th, on which day the temperature was 38·4° C. (101·2° F.); on the next day she had phlegmasia alba dolens of the left leg, for which she is still being treated.

CASE 13. Nov. 13th, 1892 (Potocki).—F——, aged thirty-eight. The notes were as follows: Two confinements; pelvis rachitic, annular; promonto-subpubic diameter 9·7 cm. First confinement in 1880, at term; cephalotripsy. Second confinement on Nov. 13th, 1892 (Clinique Baudelocque); last monthly period from Feb. 18th to 22nd, 1892; breech presentation transformed by external version into occipito-iliac right transverse; labour began on Nov. 11th at 11 P.M.; spontaneous rupture of membranes occurred at midnight; dilatation was complete on Nov. 13th at 8 A.M.; considering the information furnished by palpation, M. Potocki performed symphysiotomy at once (nine minutes), which was followed by spontaneous separation to 3 cm.; at 9.11 A.M. the application of the forceps resulted in the extraction at 9.23 (during which the separation amounted to 5·7 cm.) of a girl weighing 3300 grm. (over 7 lb.); born apparently dead, the

infant was insufflated and revived, but died at 1 A.M. on Nov. 14th; the cephalic diameters were as follows: Occipito-mental, 13·6 cm.; occipito-frontal, 11·2 cm.; sub-occipito-frontal, 10·7 cm.; biparietal, 9·5 cm.; bitemporal, 8·4 cm.; the application of the forceps was irregular, oblique, the anterior frontal region presenting a deep depression produced by the anterior blade; this depression disappeared in the evening at the same time as convulsive movements of the left half of the face appeared; the head, which is preserved in the museum, will be described later; puerperal condition: temperature oscillating, about 38° C. (100·4° F.) the first five days; union by first intention; the patient rose on the twenty-second day; she had no trouble in walking or on micturition; is still under observation.

You have just seen these thirteen women, and you are able to report that their general condition leaves nothing to be desired. The only evidence of the operation that they have undergone is a small cicatrix, scarcely visible, in the middle of the pubic region. In each the pelvis is as firm as before the operation. There is no trouble in micturating or in standing. The result is therefore as satisfactory and as complete as possible on the maternal side. We have been less happy in the case of the infants, for although all were extracted living I have only been able to show you ten, all indeed equally well, but the other three died—the first on the third day after birth (Case 1), the second on the second day after birth (Case 4), and the third in sixteen hours after birth (Case 13). If we look for the cause of death in each case, we see that in the first death was produced by fracture of a parietal bone at the moment of extracting the after-coming head. The preliminary separation of the pelvis was certainly not sufficient, considering the size of the head and the amount of pelvic contraction. This is an extremely important point, to which I will return. The second child died of congenital feebleness, for it showed no lesion at the necropsy. Although its weight at birth was 2130 grm. (about 4½ lb.) its vitality was rudimentary. Its cry was feeble and its abdomen was large. Respiratory troubles soon appeared and it died of cyanosis. Neither the operation nor the operator can be blamed. The only one who might be considered culpable is myself, for I might be reproached for interrupting pregnancy too soon. But I was led to act thus because of what happened at previous confinements: first, at term, embryotomy; second, induced at eight months, fœtus dead; third also at eight months, basiotripsy. I shall have to return to this point. As to the third child, it succumbed, like the first, to a fracture, this time of the frontal bone. Although the spontaneous separation of the pubes before extraction was 3 cm., the head engaged with difficulty, for it was large (biparietal diameter 9·3 cm.), but especially because the application of the forceps was irregular (oblique). This is a point which we must not forget presently. Such are the results furnished by symphysiotomy in this clinique since Feb. 4th, 1892.

Let us now consider the following three questions: 1. What has our experience taught us? 2. What place ought symphysiotomy to occupy amongst obstetrical operations? 3. What are and what will be its relation to other operations?

1. *What has our experience taught us?*—We have learnt, from the thirteen cases which have been observed in this clinique, that the results obtained on the cadaver can be obtained in the same way on the living patient and that the geometrical formulæ of Professor Farabœuf are perfectly exact. We have learnt that the method of operation which we recommended and which we have employed, and which I ask permission to repeat briefly, renders the operation easy and absolutely protects the organs which ought not to be injured. All antiseptic precautions having been taken and the surgical and obstetrical instruments prepared, the woman should be placed on her back near the side of a firm bed of moderate height, so that one may command directly from above the median line, which has to be incised. In the case of the cadaver, one can stand on the right side to perform symphysiotomy. On the living it is better, on account of the development of the abdomen, to stand between the limbs. I have always done so on the living. An incision should be made in the median line, and exactly in this line, of the integuments and the prepubic adipose tissue for an extent of about 8 cm., the incision stopping above the clitoris. The recti in the upper part of the incision and immediately above the symphysis should be separated in order to allow the index-finger to penetrate into the prevesical cavity and protect the bladder. This finger plays a most important *rôle* for me; it protects, it gives information. It protects the bladder by its dorsal aspect; it often feels the pad of the symphysis (but not always, for this is often so very slightly prominent that it cannot be appreciated) and thus renders the section easy. As soon as the bistoury has penetrated into the symphysis it is this finger on which its blunt point strikes, and that keeps a record of its progress down to the last fibres of the subpubic ligament. The finger being thus in the pre-vesical cavity, the symphysis must be incised from above downwards, and from before backwards, by many touches of the bistoury, allowing the latter to penetrate where it finds least resistance. As soon as we are within the symphysis the bistoury must be allowed to guide, so to speak, and not be compelled to follow a straight line. Immediately after cutting the symphysis a complete section of the subpubic ligament should be made. For this section the precaution must be taken of introducing a sound into the urethra so as to incline the latter down to the side; then the ligament must be attacked with caution by small cuts, as if cutting it fibre by fibre. The finger shows the progress accomplished; and as a general rule, when the finger learns that only a few fibres remain, like a small resisting cord, this cord breaks and the spontaneous separation, which had been only a few millimetres, suddenly increases and reaches two or three centimetres. A careful abduction of the thighs then shows that a further separation can be easily obtained. I cannot too often repeat that before all obstetrical attempts one must be sure that the section is complete so that the fœtus may have nothing to overcome by violence and at the peril of its life—that is to say, the pubes must be separated for *at least 4 centimetres*. If the abduction of the thighs is not sufficient to produce this separation, the registering separator, which has been made for us by M. Collin and which I show you, introduced between the two surfaces of the section, will easily produce this desirable and indispensable result. This being done, the wound must be closed with a sponge and antiseptic gauze or wool. You see that I reject, completely and absolutely, subcutaneous section, the incision of the symphysis from below upwards and the incision from behind forwards. You observe especially that I am in complete opposition to those who advocate incomplete section or who leave the subpubic ligament. I am convinced that if I had obtained a preliminary separation of 4 cm. in my first operation before extracting the fœtus instead of leaving to the after-coming head the duty of separator I should have obtained a better result. So much for the method of operation in symphysiotomy itself. I now examine an obstetrical question and I say that both before and after symphysiotomy it is preferable to have a vertex presentation. An application of forceps is better than an extraction by the feet; at least, so I think. But, here, again, I cannot too often repeat that the application of forceps ought to be exact. The hand should be thoroughly introduced so as to place the first blade in the middle of the pre-auricular region; if the head is not flexed it should be first flexed with the hand. Nothing is easier. That being done, the other blade should be introduced without displacing either the first blade or the head. Remember that when the two blades are introduced and placed, if they are not on the same plane and if you are obliged to make an effort to articulate them, the blades are badly placed, the head is wrongly seized, and soon in pulling you will, without doubt, make the head endure enormous local pressure and produce fractures. You remember what happened in Case 13. Well, then, the necessity for an equal application of forceps on a flexed head after as well as before symphysiotomy is absolute. Then after section of the symphysis I prefer to intervene and not to trust to uterine contractions alone to expel the fœtus; also, after the extraction of the fœtus, I do not prolong the period of delivery. If after a quarter of an hour the placenta is not detached I practice artificial delivery; for the patient under the influence of chloroform is liable to hæmorrhage and the anæsthesia must be continued till the sutures are completed. Immediately after the delivery I advise you to wash out the uterus. When the water returns clear and the uterus is well retracted I introduce into the vagina iodoform gauze, then I clean the wound with a sponge and a 5 per cent. carbolic lotion and proceed to suture the soft parts. The symphyses being brought together and well in contact, I place four deep silver sutures (which touch the anterior surface of the pubis) and four superficial ones, and then cover with iodoform and iodoform gauze. After this, the legs being brought together and held in position by a bandage, the woman is placed in a bed which I have had made—a bed which, by means of its two lateral and concave tampons, enables the pelvic bones to be kept in

constant apposition—or in a "gouttière de Bonnet." This is possible in a hospital but might be impossible in ordinary practice, though I think that the simple apposition of the legs with a well-applied trunk bandage very firm in the pelvic region, or a plaster bandage such as I had for my first case, would be quite sufficient. The superiority of my bed or of the "gouttière de Bonnet" consists in the facility with which the whole body can be raised without causing the least movement of the pelvis. The sutures should be removed on the eighth day and then the patients can turn in the bed easily and without pain. Although one of our cases rose without permission on the fourteenth day and no harm resulted, I think it prudent not to let the patients rise till about the twentieth day. This, in my opinion, is the best course to follow during and after the operation. The open section of the symphysis, from above downwards and from before backwards, which may be called the French method, is an operation which does not require any complicated array of instruments. A short-bladed bistoury, firm and fine, and a probe-pointed bistoury are absolutely sufficient; but I would recommend you to have as well a chain saw and a registering separator. The chain saw will be your ultimate resource if by chance you cannot cut the symphysis. It is said that sometimes the symphysis is ankylosed. That may be so, for I do not pretend to have seen everything; but all I can affirm is that I have made a section of the symphysis on the cadavers of more than 100 aged females and have never met with ankylosis. The self-registering separator will enable you to follow the progress of the separation during the extraction. In several of our cases we have seen separation go beyond 6 cm., and in these cases consolidation of the pelvis took place as well and as quickly as in the cases where the separation did not exceed 4 cm. I think it would be unwise to go beyond 7 cm., and it is necessary to increase the slowness of the extraction and to render the pelvis immobile when the needle begins to pass 6 cm. And if I insist on this point it is less from fear of producing lesions in the region of the sacro-iliac synchondrosis than from a desire to avoid lesions of the soft parts in the region of the vulva, vagina and bladder. We have never observed lesions of the urethra or bladder, but in three cases (6, 9, and 11) we noticed after the extraction a small vestibulo-vaginal rupture, communicating, in one case at least, with the operation wound. These lacerations healed quickly and without sutures, but similar solutions of continuity might be the starting point of lesions more extensive and deeper and on that account more serious.

2. *What place ought symphysiotomy to occupy among obstetrical operations?*—To-day one can say not only that symphysiotomy is resuscitated, but that it ought to occupy a foremost place amongst obstetrical operations. It ought to occupy a foremost place, I say, because it is most essentially a conservative operation. It does not and should not injure any important organ of the mother. It can and should save the child from all grave lesions. Does this mean that statistics will never register a death either of mother or fœtus? Certainly not. But will the operation be to blame in all these cases? Symphysiotomy will be practised in cases where the application of forceps has already been tried and in cases already infected. These cases may succumb. Would they only succumb after symphysiotomy? No; embryotomy and Cæsarean section would not have given a better result. I do not deceive myself. I shall be opposed and treated as an enthusiast; but meanwhile, till some one shows me a woman who has died solely from symphysiotomy, I shall persist in my conviction. I have had the pleasure of seeing my master (M. Tarnier) support symphysiotomy with his great authority. I have a not less sincere pleasure in seeing Professor Leopold, the great performer of Cæsarean sections, adopt and put in practice our method. I see that numbers of our colleagues and *confrères* think and act as we do. That is enough; I shall leave facts to convince or convert others.

3. *What are and what will be the influence of symphysiotomy on other obstetrical operations?*—On some it will be good and on others it will be very bad. Amongst the latter I cite first of all embryotomy practised on a living fœtus. Its day is over; we are for ever rid of this nightmare. The Cæsarean operation, followed or not by the amputation of the uterus and ovaries, will become more and more rare. Indications for this will still be found in cases of uterine and other tumours filling the pelvic cavity, but happily such cases are not very numerous. Yet even in some of these cases symphysiotomy may be indicated. Thus M. Lepage, our *chef de clinique*, has practised in this city, with success both as regards the mother and the child, a symphysiotomy in a case where a tumour partly obliterated the pelvis. In cases of contracted pelves the Cæsarean operation ought only to be recognised in cases of absolute necessity. The cases of pelves where this operation is positively indicated are so rare that it is most likely you will never meet with one. If the relations between symphysiotomy and embryotomy and the Cæsarean operation are easy to define, the task is not so easy when it is necessary to establish the relations between symphysiotomy on the one side and premature delivery and the application of forceps on the other. Still I think one can say from to-day that symphysiotomy is calculated to render great service in cases of induced labour. It will at least prevent the induction of labour too prematurely. The fear of an obstacle from the contracted pelvic cavity will no longer haunt us, and knowing that we have the power of, and I might say the facility for, enlarging the passage we can wait calmly for the maturing of the fœtus so that its capability for extra-uterine life may be certain. A point, which can only be decided by long experience and by a considerable number of well-observed facts, is the following: Is it better to induce labour at eight months, counting on natural delivery, or to wait for the spontaneous onset of a tempestuous labour and then perform symphysiotomy? I do not feel at liberty to express my opinion on this subject yet. I have formed an opinion, but I must wait before making it known to see whether many observations will support or modify it. If symphysiotomy ought to bring to an end all labours induced too prematurely it ought also to make all forcible applications of forceps disappear. How often, in the fear of having to practise an embryotomy and in the hope of extracting a living child, have we not—have I not, I should say—exercised such long and strong traction that the result was nothing but a cephalotripsy in disguise? Symphysiotomy ought to put an end for ever to all such tractions. When a perfect application of the forceps has not been able to engage the head, after moderate tractions there is only one thing to be done, and that is, to withdraw the instrument and practise symphysiotomy as I did in my second case, where the pelvis was not rachitic and very little below the normal, but in which the fœtus was extremely large.

You see, gentlemen, the influence already exercised by symphysiotomy on the majority of obstetrical operations. You see the beneficent part it exercises and will exercise in nearly all cases of pelvic contraction: in pelves simply small or flattened, in pelves contracted by rickets—that is, with the contraction at the pelvic entrance—and in pelves contracted at the outlet, the latter gaining more from symphysiotomy than when the entrance is affected. There only remain the asymmetrical pelves and especially the pelves obliquely ovular with synostosis of one sacro-iliac symphysis. Here symphysiotomy loses half or all its advantages, it is true; but I am happy to tell you that I have been able to practise in a case of this kind with success an operation conceived and described by Professor Farabœuf—namely, ischio-pubiotomy—which I performed for the first time on Nov. 9th and which I may have the honour of relating to you in a future lecture.

ON THE TREATMENT OF ANÆMIA AND CHLOROSIS BY THE CHIEF IRON PREPARATIONS COMMONLY IN USE.

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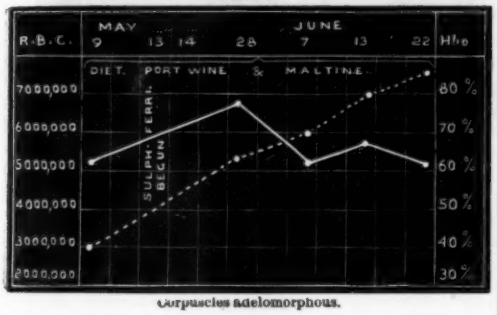
THE patients whose cases are here reported were under my care in Wards 30,[1] 32[2] and 33[2] during the past year (1891-2). The cases include symptomatic anæmia, chlorosis and pernicious anæmia, and the object chiefly contemplated was to satisfy myself as to the relative efficacy of some of the chief ferruginous substances employed in their treatment; also, to ascertain whether our present views in regard to them are correctly founded, and, further, to decide the importance to be attached to the varying amounts of red corpuscles and hæmoglobin which characterise the course of those diseases. Recognising the important *rôle* which hydro-

[1] George Wilson, M.A., M.B., C.M.Edin., house physician.
[2] R. O. Petrie, M.A., M.B., C.M.Edin., house physician.

chloric acid plays in primary gastric digestion, I am disposed to believe that, at any rate, one considerable group of anæmias originates in the initial failure of the albuminoids to undergo normal transformation through defect of gastric hydrochloric acid, thereby leading to blood impoverishment, not necessarily in consequence of the active destruction of corpuscles, but from the failure to provide sufficient and proper material necessary for their construction. In order to test the correctness of this supposition, I have selected a case of grave anæmia, associated with the complete absence of gastric free hydrochloric acid in the stomach, and which is at present under treatment by hydrochloric acid, as the only therapeutical remedy, the patient receiving 100 minims daily of the dilute acid. The case is still under observation; but the results at this stage are sufficiently interesting and instructive to justify my proceeding with the trial.

CASE 1.—J. I——, aged seventeen, a shop girl, was admitted to Ward 30 on May 19th, 1892, suffering from chlorosis. There was no evident decrease in the number of red corpuscles, which were about 5,000,000 per c.mm. The hæmoglobin was down to 40 per cent. The blood-cells were smaller than normal and defective in form. It will be seen by reference

CASE 1.[1]



Corpuscles adelomorphous.

to the chart that the corpuscles remain almost stationary at a comparatively high standard, and the hæmoglobin steadily rises to 86 per cent. This deviation from the usual course is characteristic of the chlorotic type of anæmia.

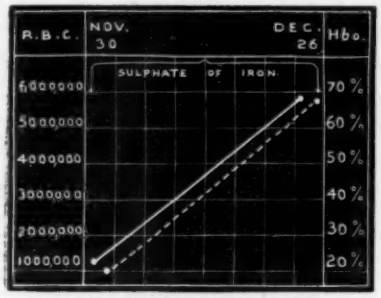
Treatment.—Sulphate of iron. The slow recovery of the hæmoglobin was peculiar to chlorosis and the treatment was prolonged to forty days.

Progress.

Date.	Red corpuscles.	Hæmoglobin.
May 9th	5,110,000 per c.mm. ...	40 per cent.
,, 28th	6,810,000 ,, ...	64 ,,
June 7th	5,240,000 ,, ...	70 ,,
,, 13th	5,780,000 ,, ...	80 ,,
,, 22nd	5,270,000 ,, ...	86 ,,

CASE 2.—J. D——, aged eighteen, was admitted to Ward 30 on Nov. 21st suffering from symptomatic anæmia complicated with intercurrent influenza. The temperature on admission

CASE 2.



Duration of treatment twenty-six days.

was 105° F., the pulse 140, and the respiration 48. By means of antipyrin her temperature was reduced in twenty-four hours to normal. Nine days thereafter she was prescribed sulphate of iron for the anæmia, which persisted after convalescence from influenza. The blood at the commencement of treatment was reduced to 1,150,000 red corpuscles per c.mm. with only 20 per cent. of hæmoglobin. At the end of twenty-six days the red cells numbered 5,800,000 per c.mm., and the hæmoglobin 68 per cent. The patient was discharged cured on Dec. 26th.

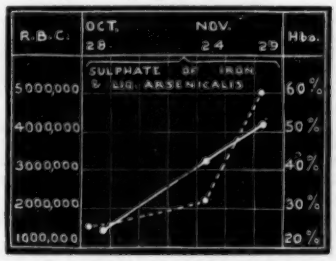
Treatment.—Sulphate of iron. The recovery of red corpuscles and hæmoglobin was equally progressive throughout, cure resulting in twenty-six days.

Progress.

Date.	Red corpuscles.	Hæmoglobin.
Nov. 30th	1,150,000 per c.mm. ...	20 per cent.
Dec. 26th	5,800,000 ,, ...	68 ,,

CASE 3.—M. D——, on admission to Ward 30 on Oct. 28th, was suffering from symptomatic anæmia. Her red corpuscles were reduced to 1,590,000 per c.mm. and the hæmoglobin to 25 per cent. Sulphate of iron and liquor arsenicalis were at once prescribed. The effects were immediately apparent, and continued progressing until Nov. 29th, when, of her own accord, she left the hospital to resume her work in a factory. In ordinary circumstances she would not have left hospital

CASE 3.



for a couple of weeks longer, by which time the red corpuscles would have been over 5,000,000 per c.mm. and the hæmoglobin would probably have registered 70 per cent. This case fairly shows the average time of recovery in symptomatic anæmia treated from the first with iron. It further shows the equal improvement in both constituents.

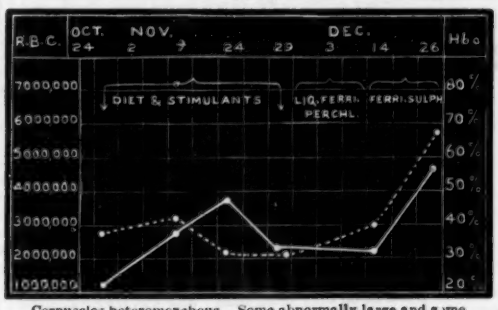
Treatment.—Arsenic: Doubtful as to any specific effect on the blood-corpuscles or hæmoglobin. It manifestly does not retard, and probably enhances, the effects of the iron. Sulphate of iron: Its twofold effect upon the red corpuscles and hæmoglobin were at once apparent.

Progress.

Date.	Red corpuscles.	Hæmoglobin.
Oct. 28th	1,590,000 per c.mm. ...	25 per cent.
Nov. 24th	3,240,000 ,, ...	31 ,,
,, 29th	4,210,000 ,, ...	60 ,,

CASE 4.—B. R——, aged eighteen, was admitted to Ward 30 on Oct. 24th, 1892, suffering from typical chlorosis. On admission she was put on ordinary ward diet, to which

CASE 4.



Corpuscles heteromorphous. Some abnormally large and some abnormally small.

were afterwards added maltine and port wine, and this trial was continued over thirty-six days. During that space the red blood cells had increased from 1,030,000 per c.mm. to

[1] The dotted line in the charts represents the percentage of hæmoglobin in the blood at definite periods of the case, and the continuous line the number of blood corpuscles per c.mm.

5,830,000 per c.mm., but the hæmoglobin had fallen from 38 per cent. to 32 per cent., so that, as regards the hæmoglobin, the patient being on diet only, the whole of the trial had been retrograde. On Dec. 1st perchloride of iron was prescribed and continued for fourteen days. At the end of that time the hæmoglobin had risen to 40 per cent., but the red corpuscles were reduced to 2,000,000. This remedy proving unsatisfactory, the sulphate of iron was substituted for it on Dec. 14th, and from that date there followed immediate and progressive increase in both constituents. On Dec. 26th, when the patient left hospital, the red corpuscles were 4,720,000 per c.mm., and the hæmoglobin 68 per cent.

Treatment.—Diet (thirty-six days): Increase of red corpuscles; diminution of hæmoglobin. Perchloride of iron (fourteen days): Increase of hæmoglobin; reduction of red corpuscles. Sulphate of iron (twelve days): Progressive increase in hæmoglobin and red corpuscles.

Progress.

Date.	Red corpuscles.	Hæmoglobin.
Oct. 24th	1,030,000 per c.mm. ...	38 per cent.
Nov. 7th	2,800,000 ,, ...	40 ,,
,, 14th	3,800,000 ,, ...	32 ,,
,, 29th	2,250,000 ,, ...	32 ,,
Dec. 14th	2,100,000 ,, ...	40 ,,
,, 26th	4,720,000 ,, ...	68 ,,

CASE 5.—K. M——, aged twenty-one, was admitted to Ward 30 on June 25th, 1892, suffering from symptomatic anæmia. Her condition represented a severe type of the symptomatic group, with 2,600,000 red corpuscles per c.mm. and 25 per cent. of hæmoglobin. Both constituents remained stationary at the end of eight days on diet only. On July 3rd five minims of liquor arsenicalis were prescribed three times daily, the dose to be increased to thirty minims daily. An examination of the blood on July 10th showed the hæmoglobin to be stationary and the red corpuscles almost so. On July 11th sulphate of iron was substituted for the arsenic. From that date the hæmoglobin and red corpuscles markedly and rapidly increased to Aug. 16th, when the patient was discharged in perfect health, the red corpuscles being 6,400,000 per c.mm. and the hæmoglobin 66 per cent. By comparison with chlorosis the difference in this case of symptomatic anæmia is strikingly brought out in the much more rapid and concurrent progress in both hæmoglobin and red corpuscles.

Treatment.—Diet: No improvement. Arsenic: Improvement doubtful. Sulphate of iron: Immediate and continued improvement in red corpuscles and hæmoglobin.

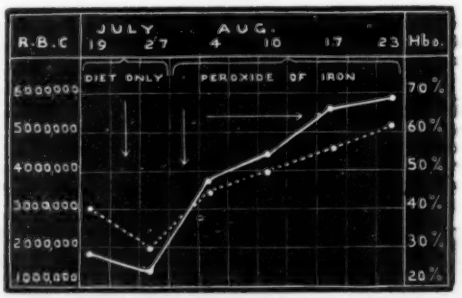
Progress.

Date.	Red corpuscles.	Hæmoglobin.
June 25th	2,600,000 per c.mm. ...	25 per cent.
July 3rd	2,500,000 ,, ...	25 ,,
,, 10th	2,900,000 ,, ...	25 ,,
,, 19th	3,300,000 ,, ...	30 ,,
,, 26th	4,200,000 ,, ...	52 ,,
Aug. 4th	5,200,000 ,, ...	66 ,,
,, 11th	5,400,000 ,, ...	65 ,,
,, 16th	6,400,000 ,, ...	66 ,,

CASE 6.—M. C——, aged twenty, a waitress, was admitted to Ward 30 on July 19th, 1892. She was then suffering from advanced chlorosis. The red blood corpuscles were reduced to 1,900,000 per c.mm. and the hæmoglobin was 40 per cent. During the first ten days, on diet only, the corpuscles fell to 1,500,000 per c.mm. and the hæmoglobin to 30 per cent. On July 27th she was prescribed fifteen grains of peroxide of iron, to be given thrice daily. It was ascertained on Aug. 4th that the red corpuscles had increased to 3,800,000 per c.mm. and the hæmoglobin to 46 per cent. Steady progress continued to be made until Aug. 23rd, at which time the patient left the hospital cured. At that date the red corpuscles had increased to 6,000,000 per c.mm. and the hæmoglobin to 70 per cent. She was twenty-six days on peroxide of iron treatment.

Treatment.—Diet alone: Marked reduction in red corpuscles and in hæmoglobin. Peroxide of Iron: Immediate and marked increase in both constituents, with complete recovery in twenty-six days.

CASE 6.

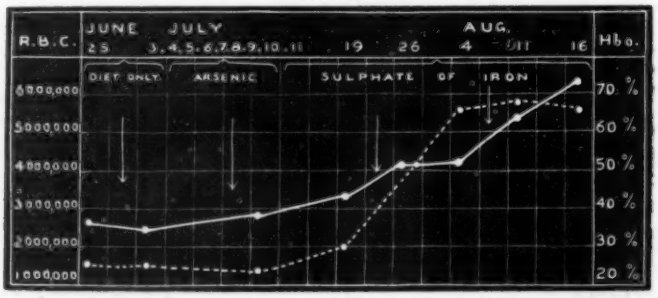


Progress.

Date.	Red corpuscles.	Hæmoglobin.
July 17th	1,900,000 per c.mm. ...	40 per cent.*
,, 27th	1,500,000 ,, ...	30 ,,
Aug. 4th	3,800,000 ,, ...	46 ,,
,, 10th	4,600,000 ,, ...	50 ,,
,, 17th	5,600,000 ,, ...	56 ,,
,, 23rd	5,800,000 ,, ...	62 ,,

* Diet only.

CASE 5.



CASE 7.—I. S——, aged twenty-four, was admitted to Ward 30 on May 14th, 1892, labouring under marked chlorosis with 3,600,000 per c.mm. of red corpuscles and 28 per cent. of hæmoglobin. She was in the first instance put on ordinary diet, with the addition of maltine and port wine, which were continued for twelve days, at the end of which the red corpuscles had increased to 5,900,000 per c.mm., but with the hæmoglobin only at 38 per cent. Notwithstanding the relatively large increase in the corpuscles the patient did not show evidence of being in a really improved condition. At this stage treatment by sulphate of iron was begun, given in seven-grain doses thrice daily. The immediate effect of this was evident in a marked increase in the hæmoglobin, the red cells also increasing in number. She continued under the same iron treatment until July 25th, at which time she left the Infirmary in perfect health with the percentage of hæmoglobin at 80 and the corpuscles numbering 6,500,000 per c.mm. The point of chief clinical interest to be noticed in this typical case of chlorosis is the comparatively slow rate of increase in the hæmoglobin and the rapid and excessive restoration of the red blood-cells. I have found this feature characteristic of the whole of the chlorotic group, marking a difference whereby chlorosis may generally be distinguished from symptomatic anæmia. As indicating that chlorosis is a

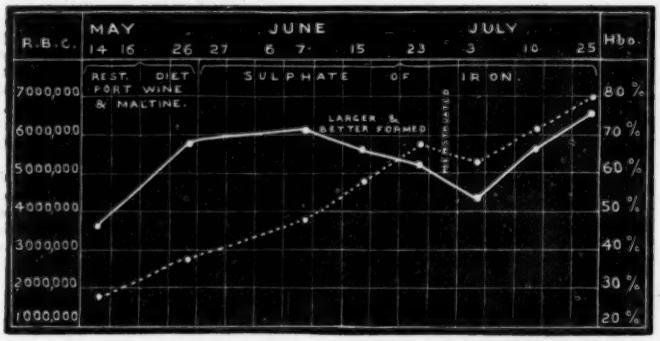
graver type of anæmia than that of the symptomatic form it may be added that not only does the hæmoglobin recover slowly, but that the corpuscles remain for a longer period defective in size and shape. The patient was fifty-nine days on iron treatment.

Treatment.—Diet (with port wine and maltine): Rapid relative increase of red blood-cells; slight relative increase of hæmoglobin; no appreciable change in size and shape of corpuscles. Sulphate of iron. Progressive increase in

Progress.

Date.	Red corpuscles.	Hæmoglobin.
July 18th	2,500,000 per c.mm.	... 30 per cent
,, 27th	2,900,000 ,,	... 40 ,,
Aug. 4th	3,400,000 ,,	... 35 ,,
,, 10th	3,000,000 ,,	... 43 ,,
,, 17th	3,800,000 ,,	... 55 ,,
,, 24th	4,800,000 ,,	... 60 ,,
Sept. 9th	5,800,000 ,,	... 70 ,,

CASE 7.



hæmoglobin; red corpuscles continue to increase and recover their normal character.

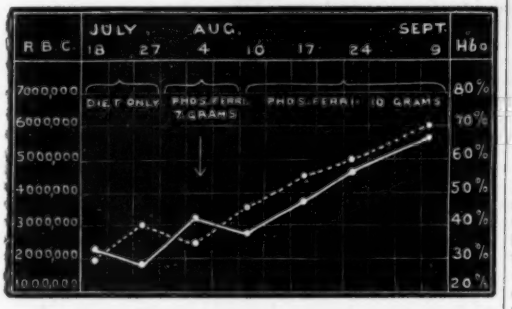
Progress.

Date.	Red corpuscles.	Hæmoglobin.
May 14th	3,600,000 per c.mm.	... 28 per cent.
,, 27th	5,900,000 ,,	... 38 ,,
June 7th	6,100,000 ,,	... 49 ,,
,, 15th	5,600,000 ,,	... 58 ,,
,, 23rd	5,300,000 ,,	... 68 ,,
July 3rd	4,500,000 ,,	... 64 ,, *
,, 10th	5,800,000 ,,	... 74 ,,
,, 25th	6,500,000 ,,	... 80 ,,

* Menstruation.

CASE 8.—J. L——, aged seventeen, was admitted to Ward 30 on July 18th, 1892, suffering from symptomatic anæmia. She was put on diet only for the first nine days, with the result that the hæmoglobin increased from 30 to 40 per cent., the corpuscles showing nearly the same enumeration—namely, 2,000,000 per c.mm. On July 27th the patient was prescribed seven grains of phosphate of iron, thrice daily, afterwards increased to ten grains. Under this drug the hæmoglobin

CASE 8.

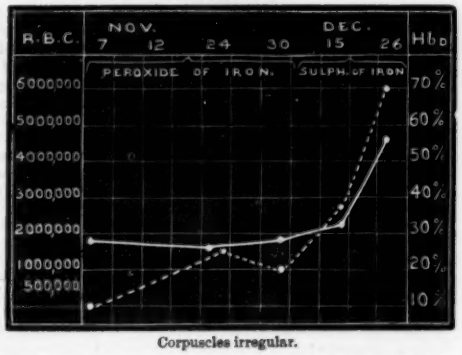


and red corpuscles progressively increased until Sept. 9th. At that date the corpuscles were 5,800,000 per c.mm. and the hæmoglobin 70 per cent., the patient having been forty-three days taking phosphate of iron.

Treatment.—Diet only: Hæmoglobin moderately increased, red corpuscles stationary. Phosphate of iron: Hæmoglobin and corpuscles progressively recovered, but recovery is slower than with some of the other irons.

CASE 9.—M. G——, aged nineteen, was admitted to Ward 30 on Nov. 4th, 1891, suffering from symptomatic anæmia. On admission the red corpuscles were 1,900,000 per c.mm., and the hæmoglobin 10 per cent. She was at once put on treatment by peroxide of iron, which was continued for fifteen days. During this time the corpuscles were reduced to 1,640,000 per c.mm., but the hæmoglobin increased to 26 per cent. An examination six days later showed that the corpuscles had returned to their original number, but that the hæmoglobin had diminished to 20 per cent. The result of this trial with peroxide of iron proving unsatisfactory, it was suspended and the sulphate of iron substituted. After fifteen days, during which the sulphate of iron was continued, the corpuscles had risen to 2,250,000 per c.mm. and the

CASE 9.



Corpuscles irregular.

hæmoglobin to 38 per cent.; and seven days later the blood cells had increased to 4,630,000 per c.mm. and the hæmoglobin to 70 per cent. The actual time of treatment by sulphate of iron was twenty-six days. The three weeks' trial with peroxide of iron is practically out of account.

Treatment.—Peroxide of iron: Results negative. Sulphate of iron: Normal restitution of corpuscles and hæmoglobin in twenty-six days.

Progress.

Date.	Red corpuscles.	Hæmoglobin.
Nov. 6th	1,960,000 per c.mm	... 10 per cent.
,, 24th	1,640,000 ,,	... 26 ,,
,, 30th	1,900,000 ,,	... 20 ,,
Dec. 15th	2,250,000 ,,	... 38 ,,
,, 26th	4,630,000 ,,	... 70 ,,

(To be concluded.)

ON THE GENERA STREPTOTHRIX AND CLADOTHRIX OF COHN.

BY G. W. DAMMAN, M.B., CH.B. MELB.,
ASSISTANT BACTERIOLOGIST TO PROFESSOR RAY LANKESTER, OXFORD UNIVERSITY.

WITHIN the last year or two several observers on the Continent have isolated and described a species of micro-organism consisting of branched mycelium-like threads, and therefore not belonging to the Schizomycetes. So far as I am aware no one has described anything similar in this country, and therefore I make a few remarks about these plants and bring before the readers of THE LANCET the results of my own observations. But before entering into general considerations I shall first describe three members of this group which I have isolated and cultivated, one being chromogenic and the others colourless.

STREPTOTHRIX *A*.

This organism was isolated on four occasions from unfiltered Thames water and closely resembles the oöspora Metchnikowi of Sauvageau and Radais; also a plant described by Macé, which he erroneously considers identical with Cladothrix dichotoma of Cohn.

Morphology.—The cultures are so firm and adherent that cover-glass preparations are difficult to make. Preparations show fine filaments, with branches ramifying in all directions. There is no regularity in the branches, which are more numerous in some filaments than in others, or in different parts of the same filament. They arise as a small lateral bud at right angles to the axial stem but may rapidly incline at an angle to the mother stem and become more or less wavy or curled. The threads vary somewhat in thickness; Sauvageau and Radais explain this as being due to two threads running side by side for some distance. This explains the appearance in some cases, but in others it is certainly due to difference in thickness of the filaments themselves. This is all that can be seen of their structure when stained by gentian violet or fuchsine, but if stained by methylene blue, or still better by Gram's method, it is at once seen that the filaments are not homogeneous; they are irregularly broken up into stained and unstained portions, so as to resemble short leptothrix forms, long and short rods, and coccus forms. This appearance is seen also in the fresh state and in cultures of all ages. This is undoubtedly what Cohn and Zopf have described as segmentation into micrococci, bacilli, leptothrix and spirilla. But they never become free, and in my opinion are due simply to an irregular distribution of the protoplasm, because I have seen all stages of their formation, from scarcely perceptible granularity to the most perfect chains of bacilli.

Biology.—The organism appears on gelatine plates in two or three days as yellowish-white points, gradually increasing in size and forming a fairly prominent button-like colony with a matt surface and rounded outline. The gelatine surrounding the colony assumes a brown colour to the extent of about two millimetres, afterwards darkening almost to black. Under the microscope the colony appears as a dark brown mass, opaque in the centre; the margins consist of a confused network of threads, which is rather looser at the periphery. In about a week it forms a brownish-white, tough, coherent skin, slightly sunken owing to liquefaction of the gelatine, and the skin can be removed *en masse*. In puncture cultivations there is a brownish-white growth on the surface, which may afterwards become somewhat wrinkled, but which never reaches the walls of the tube. Along the needle track there are a few indistinctly contoured colonies in the upper part, which with a lens are frequently seen to have a radial arrangement. The gelatine is stained brown, but the colour never extends to any depth in the gelatine. Liquefaction begins in about a week, but is slow and incomplete. On agar-agar it forms discrete brownish-white colonies, which also produce the dark discolouration of the medium to which the culture is very firmly adherent. The condensation fluid is stained brown. In nutrient bouillon kept in the incubator at 35°C. it grows very slowly, forming isolated colonies which do not render the fluid cloudy. These colonies consist of small rounded flakes, which collect at the bottom of the culture tube. When one of these flakes is transferred to a slide it is seen to consist of a dense mass of filaments, which can only be distinguished at the periphery. The whole fluid is stained a deep brown.

CLADOTHRIX *B*.

This was also obtained from Thames water, and presents several marked differences from the preceding variety.

Morphology.—In gelatine cultures we see long filaments which may consist of two or more relatively shorter threads and may show remarkable tortuosity. As preparations are more easily made than in the case of the preceding organism, the branches are very distinctly seen, and close observation shows that the branching is pseudo-dichotomous. The branches start as lateral buds, which are not necessarily at right angles to the parent stem and may exceed the latter in length. In many preparations a colourless sheath, about four times as wide as the protoplasmic portion, may be demonstrated, but it remains unaffected by any of the ordinary stains. As in Streptothrix A., methylene blue and Gram's stain show the so-called segmentation very distinctly. But in agar and bouillon cultures, especially if young, the filaments consist of large sausage-shaped bacilli strung together and connected by a colourless sheath. The filaments are not of uniform width and the extremities may present club-shaped swellings. In some places the unstained portion of the filament is seen to be much wider than at others, and there may be a series of these swellings separated by intervening contractions which are deeply stained. The former I take to be simple dilatations of the sheath.

Biology.—The organism grows fairly rapidly in gelatine plate cultivations. About the fourth day the plate is dotted with white, rounded, coherent colonies which have an uneven surface and under the microscope appear dark and opaque. Two days later the margin is seen to consist of a meshwork of threads. In puncture cultivations a grey wrinkled layer is seen on the surface, which during the next few days becomes more flattened and sometimes shows concentric rings. There is luxuriant growth along the puncture in the form of a thick white streak. Liquefaction begins in five or six days and extends gradually downwards, the liquefied gelatine being turbid and opaque. On agar-agar there is rapid development of a broad grey shining band, the margins of which show transverse striation. Potato cultures are peculiar. At first there is rapid and abundant development of a shining, raised, colourless, sometimes opalescent growth, which in the course of a few days becomes covered with a pasty skin and afterwards subsides to the bottom of the tube. Bouillon remains clear; but a few fine flakes are deposited at the bottom, consisting of chains of large bacilli bent on each other at an angle.

STREPTOTHRIX *C*.

This organism was isolated from the saliva of a healthy individual. Its morphology is similar in every respect to that of Streptothrix A., but in addition there are certain threads which correspond to Conidia; they are usually short and thick and occasionally branched. The process of spore formation is this: The filament swells somewhat and becomes slightly granular; the contour then becomes sinuous, and there is an appearance of segmentation into coccus-like bodies or spores. After this there is apparently no change for two or three days, and then suddenly the spores become liberated. They may be quite round, but are usually rather longer in one diameter. I have not observed the development of these spores into fresh filaments, but have no doubt that under suitable conditions this would take place.

Biology.—In plate cultivations growth is slow. In four days we see a small, round, shiny white colony, not raised above the surface. Under the microscope it appears dark-brown, and later a thick felted arrangement of threads is seen at the periphery. In stroke cultures there is a grey ribbon-like band with smooth edges; very shortly a white, chalky streak appears in the centre of the culture, which increases with the development of the organism but always leaves a narrow margin of grey. This chalky portion is at first firmly adherent to the subjacent medium, but about the fifth day it can be removed as a white powder and is found to consist exclusively of oidia and oidiospores. Liquefaction begins about the same time and advances rapidly. Stab cultures are grey, with an irregular and pitted surface, and in the centre there is the same white chalky appearance. Along the puncture there is a good development of numerous closely-arranged but isolated colonies. Agar-agar cultures kept in the incubator at 37° C. consist of isolated grey plaques, much raised at the edges and depressed in the centre. At this temperature no spores are formed, but if kept at the ordinary temperature the white chalky appearance is quickly developed. In bouillon cultures there are some flaky masses

at the bottom of the tube, but the fluid remains clear. All cultures have a powerful, musty odour.

GENERAL REMARKS.

Definition.—Several writers seem to have confused Streptothrix and Cladothrix. Thus Macé, in his account of what he calls "Cladothrix dichotoma," describes an undoubted streptothrix. But the distinction is simple enough. Cohn's definitions were:—Cladothrix: very fine leptothrix filaments; colourless, not articulated, straight or wavy, with false branching. Streptothrix: very fine leptothrix filaments, colourless, non-articulated, straight or slightly spiral, with true branching. Besides these, they are further distinguished by the former possessing a sheath, which the latter does not. It is, in fact, the presence of a sheath in Cladothrix that accounts for the false branching; for it holds together filaments which without it would fall asunder.

History.—The first to discover the cladothrix was Cohn, who two years later described and figured it, together with another organism which von Graefe and afterwards Foerster had observed in the lacrymal canal, and which Cohn now names Streptothrix Foersteri. Cienkowski next studied the cladothrix. In 1877 he stated that he had seen both true and false branching, but as he makes no mention of Streptothrix it is probable that he has confounded the two. Zopf in 1882 published an excellent description of Cladothrix, which was accompanied by several valuable plates; he, however, could not distinguish between the two varieties and says that they could not be separated. But he denies that he has ever seen true branching in any organism whatever, and therefore it is evident that he had never studied the streptothrix. Winter, two years later, considered Streptothrix and Cladothrix as synonymous terms. Macé, in 1888, succeeded in cultivating an organism which he called Cladothrix dichotoma, but, as mentioned before, this was a true streptothrix and differed in several particulars from true Cladothrix dichotoma. The specific cause of cattle disease in Guadeloupe—farcin de bœuf—was described in 1889 by Nocard as a cladothrix, but subsequent investigation by Metchnikoff showed it was a streptothrix. Billet, who has considered the cladothrix from every point of view, and has gone into it very exhaustively, has endeavoured to cultivate this organism on ordinary media, but not altogether with success. But in the hanging drop he has observed all the stages of development of the cladothrix, including the formation of rods and coccus forms. Since 1890 Russell cultivated a true cladothrix from sea-water, and Eppinger, from a case of meningitis, has isolated a streptothrix, although he calls it a cladothrix; other forms of streptothrix have been isolated by Gasperini, Almqvist, Doria, Gruber, Sauvageau and Radais, and lastly by myself.

Reproduction.—The methods by which reproduction is provided for in the different species are various. In Cladothrix dichotoma Billet claims to have observed the formation of true endogenous spores. The first stage in their formation is a retraction of the protoplasm of the filaments into a rectangular bacillus-like body, which then divides into two portions, each of which again similarly divides, so that we have the appearance of fine angular or rounded bodies (spores) enclosed within a clear byaline sheath. In my cladothrix no spores could be observed. Macé says the filaments of Cladothrix dichotoma (*sic*) may become segmented into very short rods or spherical bodies, which may be considered as arthrospores. Doria, according to Sauvageau, describes sporiferous filaments which are very much thicker than the vegetative filaments and segment into spores. These swell up by a process but little known, though certainly connected with the presence of air in the interior, and rupture of the investing membrane sets the spores at liberty. The method of sporulation described by Sauvageau and Radais in Oöspora Guignardi is very similar to that of Doria and of my Streptothrix C. The surface of all cultures on solid media is covered with a white powder, which consists of short sporiferous filaments, distinguished from the ordinary vegetative filaments by their much greater thickness. Segmentation takes place simultaneously along the whole filament. The spores are round or oval and can easily be separated from each other. They stain easily with aniline dyes and with Gram's stain. Almqvist describes a very curious method of fructification. When cultivated in a thin layer of fluid the plant gives rise to filaments which rise out of the fluid into the air and there become segmented into oidiospores. These spores become covered with oil produced by the plant itself, so as not to be wetted, and can then be distributed by the wind to other places for development.

Place in classification.—Cohn considered—and his opinion has been closely followed by Zopf and others—that Streptothrix and Cladothrix were closely allied. Sauvageau and Radais, on the other hand, think these two plants have nothing in common. They regard Cladothrix as a bacterium and Streptothrix as a mycelium; the latter, therefore, should be placed amongst the mould fungi and not amongst the bacteria. As regards Streptothrix, Doria believes they belong neither to the bacteria nor to the moulds, but to a special group of their own. Almqvist agrees with Cohn and Brefeld that Streptothrix is a bacterium and forms a connecting link with the Hyphomycetes. I rather incline towards Sauvageau's view that Streptothrix and Cladothrix are not at all closely allied. The latter, I think there can be no doubt, belongs to the group of Bacteria; but the proper place for Streptothrix is by no means so readily determined. In certain characters—for example, the appearance of so-called coccus forms and short rods—they resemble the bacteria; other characters, however, such as the musty odour which most of them possess, and especially their fructification by means of conidia, point very conclusively to the Hyphomycetes. They undoubtedly form a connecting link between the two families, but, I think, should be placed rather among the latter than the former.

Bibliography.—Almqvist: Untersuchungen über einige Bacteriengattungen mit Mycelien (Zeitschrift für Hygiene, 1890). Billet: Contribution à l'Étude de la Morphologie et du Développement des Bactériacées (Paris, 1890). Cienkowski: Zur Morphologie der Bacterien (Mémoire de l'Académie Impériale des Sciences de St.-Pétersbourg, 1877). Doria: Su di alcune Specie di Streptothrix trovate nell'Aria (Annali dell'Istituto d'Igiene di Roma, 1891). Eppinger: Ueber eine neue pathogene Cladothrix (Beiträge zur Pathologischen Anatomie, 1890). Gasperini: Recherches Morphologiques et Biologiques sur un Micro-organisme de l'Air (Annales de Micrographie, 1890); Sopra una nuova Specie appartenente al Genere Streptothrix (Pise, 1891). Macé: Sur les Caractères des Cultures de Cladothrix dichotoma (Comptes-rendus de l'Académie des Sciences, 1888); Traité Pratique de Bactériologie (Paris, 1892). Nocard: Sur le Farcin de Bœuf (Annales de l'Institut Pasteur, 1888). Russell: Ueber im Golf von Neapel lebende Bacterien (Zeitschrift für Hygiene, Band xi.). Winter: Die Pilze (1884). Zopf: Die Spaltpilze (1885).

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

ROYAL FREE HOSPITAL.

PNEUMONIA FOLLOWED BY ULCERATIVE ENDOCARDITIS AND MENINGITIS.

(Under the care of Dr. SAINSBURY.)

CASES of malignant endocarditis, though not very infrequent, are always interesting, and in particular in their etiology. The present case illustrates the well-known but ill-understood relation between pneumonia and this form of endocarditis. According to Osler pneumonia was present in 11 out of 23 cases observed in Montreal and in 54 out of the 209 cases which he analysed in his Gulstonian Lecture. Meningitis is a not infrequent further complication; it was observed in 25 of the 209 cases, and in 15 of these 25 there was also pneumonia. For the notes of this case we are indebted to Mr. Wilmot H. Evans, B.Sc. Lond., registrar.

A furniture porter was admitted into the Royal Free Hospital on Nov. 11th, 1892, under the care of Dr. Sainsbury, complaining of pain in the side and shortness of breath. In his family history there was nothing noteworthy. He had lived in London for the greater part of his life, well clothed

and well fed, but he frequently got wet through, and his hours of work were very long. He had never taken more than a moderate amount of alcohol until about a fortnight previously, but since then he had taken much rum. He had rheumatic fever at the age of twenty-one and had had winter cough for many years. Seven days before admission he got wet through early in the morning and kept his wet clothes on all day. Two days later he awoke complaining of great pain in the abdomen, and though he got up the pain increased so much that he had to return to bed. During the day he shivered several times, but had no distinct rigor; there was also some diarrhœa. That night he was in much pain and was unable to sleep, and with every breath he felt a sharp stabbing pain in the right side, and his cough (which he had had about two months) became more troublesome. The next morning he consulted a medical man. He was told that he had pleurisy and that he should go to bed. A poultice was applied to the side. That night he was very restless and was slightly delirious. The next two days he continued in much the same condition, but his cough grew worse, the amount of sputum increased and some of it was said to have been black. Each evening delirium came on and he could not sleep. On the 10th he was delirious, got out of bed and walked downstairs. When the medical man saw him, he said the patient had "inflammation of the lungs" and advised his friends to take him to a hospital; the next day he was admitted to the Royal Free Hospital.

Nov. 11th.—The patient lies on his back in bed, though he can lie on the side. His face is somewhat cyanosed. Temperature 100·6°; pulse 100; respiration 38. He complains of pain, stabbing in character, in the right side, much worse on breathing deeply. He has a cough, which is not severe; the sputum is viscid and in parts it is "rusty." The respiration is short and shallow. On percussion the note on the left side is normal; on the right in front it is resonant also, but in the axilla and behind there is dulness. On auscultation expiration is slightly prolonged all over the chest, due to the emphysema present; in the right axilla the breath sounds are weak and at the back on the right side there is well-marked bronchial breathing, best heard to the inner side of the angle of the scapula, and here there is well-marked pectoriloquy. No adventitious sounds are to be heard. Vocal resonance is diminished in the right axilla, but is increased at the back on the right side. The heart's apex beat is in the fifth space in the nipple line, but is very indistinctly felt. The heart sounds are normal but faint. The appetite is poor; there is much thirst; the tongue is coated with white fur. The urine has a specific gravity of 1018 and contains no albumen. He was put on a milk diet and five grains of carbonate of ammonium were prescribed every four hours.

12th.—He has had a fairly good night, though delirious at times. He tries to get out of bed, but answers fairly well questions put to him.

14th.—He continues in the same condition with much delirium and but little sleep. In the right axilla the breath sounds are bronchial and there is increased vocal resonance. Behind at the right base some fine crepitations can be heard. The temperature has fallen to normal.

16th.—Condition practically unchanged. Crepitations are heard in the right axilla. The expectoration has increased and the sputum is more markedly "rusty."

18th.—He sleeps better, but complains of his feet feeling cold. The cough is much better and there is no "rusty" sputum. The delirium has gone.

23rd.—The bronchial breathing has entirely disappeared, but there is some dulness at the right base.

26th.—At six o'clock this morning the temperature rose to 101·4°. He complains of a sharp pain in the left axilla, but no physical signs can be discovered. He has had slight shivering this morning. In the evening the temperature fell about a degree.

27th.—He had a rigor about noon, and the temperature rose to 103·4°, but fell rapidly to 98°, with profuse sweating. He felt a severe pain in the left axilla.

28th and 29th.—On each day he felt a chill, and the temperature rose to over 103°, falling again rapidly. No abnormal physical signs can be detected in the chest. He was delirious at night.

30th.—At mid-day he had a rigor, the temperature rising to 102°. He was ordered five grains of quinine every six hours. The sputum was examined for tubercle bacilli, but none were found.

Dec. 1st.—The temperature is 103·2°; no abnormal signs can be discovered in the lungs. The first heart sound has a blowing character at the base. In the afternoon he became very drowsy, and his breath was very offensive. Exploratory needles were inserted behind in the seventh and eight spaces, and a little bloodstained fluid was withdrawn. The temperature has risen to 105·4°.

3rd.—He is very drowsy. The tongue is dry and brown, but the breath is less offensive. The legs and arms are cold and bluish. The pupils are unequal. There is external strabismus. No optic neuritis. A double blowing murmur can be heard at the base of the heart. He sank gradually. During the day the temperature rose until it was over 106°. In the night he had clonic spasms of the arms and legs, and died.

Necropsy performed by Dr. ANDREWES.—Brain: In the subarachnoid space there was much exudation of semi-purulent lymph with excess of fluid. The meningitis was well marked on the convexity, but was still more marked at the base of the brain. There was no actual pus. The brain itself was healthy. Heart: On that segment of the aortic valve which lies opposite the right coronary artery there was a mass of greenish vegetation, soft and friable. It was as large as a small hazel-nut and into it projected a small aneurysm of the valve. The two other cusps of the valve were healthy. The aorta showed slight fatty degeneration of the intima and had not been infected by the vegetation. Lungs: Both were very congested and œdematous. On the surface of the lower lobe of the left lung there was a small whitish patch, which was sharply outlined. The lower lobe of the right lung had nearly recovered from the pneumonia, but close to the base, in the centre of the lobe, there was a small cavity (about three-quarters of an inch in diameter) full of pus, apparently sweet. On the right side there were dense, pleural adhesions, but there were none on the left. The other organs were healthy.

We are also indebted to Dr. Andrewes for this further note with regard to the microscopical and bacteriological examination of some of the parts removed. "Cover-glass preparations made from the aortic vegetation showed numerous organisms all of one kind—viz., short bacilli, with bipolar staining, often arranged end to end or even in short chains. At first it was thought that there might be diplococcus pneumoniæ, but it was not possible to demonstrate any very distinct capsule, and on the whole they appeared to be short bacilli rather than diplococci. Sections of the vegetation showed these same organisms, arranged in sharply defined masses, here and there throughout its thickness. Numerous cultivations made from a fragment of the fresh vegetation both on gelatin and on agar-agar, remained perfectly sterile; not a single colony grew. The growth of the organism under anærobic conditions was not tested. The meningeal exudate contained numerous pus cells and a few micro-organisms of various sorts. Cultivations yielded various species, including staphylococcus pyogenes aureus. No one organism predominated, and no satisfactory conclusion could be drawn."

Remarks by Dr. SAINSBURY.—The patient was admitted on the seventh or eighth day of the disease; on the eleventh day the temperature became normal and on the fourteenth day the disease appeared to have departed. After an interval of seven or eight days there occurred a sudden rise of temperature and thence onwards till death seven days later an irregular pyrexia was maintained. The delirium reappeared with the return of fever and the disease assumed a typhoid character. A probable diagnosis of malignant endocarditis was made, which was enforced by the discovery of the double bruit at the base, but it must be confessed this bruit was very feeble. The case, it has been remarked, shows in its etiology a sequence of events frequently witnessed—viz., lobar pneumonia—malignant endocarditis, also in the further occurrence of meningeal trouble it is not unusual; but I would point to the presence of a small abscess in the centre of the pneumonic lobe as a rare event in pneumonia. I would also draw attention to the occurrence of one attack of rheumatic fever at the age of twenty-one, which, though the lesions of the aortic valve appeared at the necropsy to be wholly recent, may possibly have caused slight mischief to this valve, the subsequent and fatal endocarditis being grafted upon a slight damage of this kind. This is supposition only, but the precedence of an illness with marked endocardial affinities should not be overlooked, and it is clear that an acute inflammation such as was here found might obliterate all evidence of an old standing inflammatory residuum.

CHISLEHURST, SIDCUP AND CRAY VALLEY COTTAGE HOSPITAL.

A CASE OF FRACTURE WITH DISLOCATION IN THE CERVICAL REGION; NECROPSY.

(Under the care of Dr. G. W. DAVIS.)

THE following is an interesting account of a case of damage to the spinal cord in the cervical region, with fracture and displacement of parts of the fourth, fifth and six cervical vertebræ. It is probable that the cord was completely crushed by the injury, for from the first the deep reflexes were absent, and it is the absence of these which indicates the extent of the injury. There can be no doubt that the decision not to operate in the case of this patient was the correct one. The statistics of operation for paraplegia dependent on injury to the cervical spine are decidedly against any interference, especially in recent cases.

W. G. H——, a sawyer aged twenty-one, was in a boat-swing on May 7th, 1892, with a companion. The swing was descending, and W. G. H——, in the higher seat, let go the propelling rope to save his hat. In the act of leaning over the side to again secure the rope he was struck on the forehead by the first of the swing shores; this blow threw him across the swing, which then carried him to the further support, by which he was hurled to the ground, alighting on his head. The accident happened at 2.30 P.M. He was unconscious for an hour; his nose bled. He was thought to be drunk by the by-standers and was carried twenty feet and laid on the grass. A medical man who was present had him conveyed to the hospital. Dr. Davis was sent for at 5 P.M. and saw him at 5.20 P.M., about three hours after the accident. On admission the man was found to be very muscular and heavily built, with fair complexion. He was very collapsed but conscious. The pulse was heaving and slow (48); the head and face were markedly cyanosed; the smell, taste and hearing were good; the tongue could be protruded straightly; deglutition was good; the pupils were equal, they were contracted and did not react to light. No lesion was discovered on the head, except the bruise over the right frontal protuberance; there was partial abduction of the arms, which were externally rotated, and the forearms and wrists were so flexed that the fingers touched the upper part of the deltoid on the same side; this position of the arms was involuntary. There was impairment of sensation throughout both upper extremities; localisation of feeling was most marked over the region of the deltoid. There was much pain over the lower cervical region; over the right scapular region, and down the right arm; there was a feeling as of a weight on the right arm and the patient continually reiterated his request that the weight might be removed; there was complete motor and sensory paralysis from and below a line drawn on a level with the lower border of the second costal cartilage; bordering and above this line was a hyper-æsthetic zone of about one inch in breadth, but extending, so far as it was possible to test, all around the body. The skin reflexes were absent, with the exception of the plantar reflex; slight stimulation elicited no response, but if the finger nail was drawn sharply and firmly across the sole of the foot the great toe was, after a distinct interval, momentarily abducted to the extent of about one-eighth of an inch. The conjunctival reflex was normal. The knee-jerk and ankle-clonus were not obtainable. Fæces had been passed involuntarily between the time of accident and admission. There was partial priapism. His temperature was 96°. Four ounces of dark-coloured urine were drawn off and found to contain a trace of albumen. The respiration was altogether diaphragmatic. At 11 P.M. some vomiting occurred; besides much food-stuff, which contained a teaspoonful of blood-clot. The patient asked frequently to have his head raised—that is, that the head might be so extended as to tilt the chin and arch the neck. A cervical cushion, as suggested by Hilton, was tried, but could not be endured.

May 8th.—The shock seemed to have passed off. Cyanosis was much less marked. The zone of hyper-æsthesia was not so well defined. Pain was complained of in the abdomen when the urine was drawn off. The urine was normal. Bullæ had developed over the phalangeal end of the left index metacarpal and over the inner side of the left gastrocnemius. Towards evening he said, "The pain at the right arm is better and comes and goes, but the pain in the neck keeps jumping." Temperature at 8 A.M., 100°; at 8 P.M., 98·4°.

9th.—An enema of gruel and oil was administered without effect until followed by gentle massage over the course of the colon. Towards evening the susceptibility to noises increased. Temperature at 8 A.M., 99° F.; at 8 P.M., 98·4° F.

10th.—Since the previous night he had been wandering at times. The sensitiveness to sound was increased; the discomfort and pain in the neck were such that no position of the head was bearable; an icebag was applied to the head; an enema followed by massage led to a motion of the bowels. Temperature at 8 A.M., 97·4° F.; at 8 P.M., 99° F.

11th.—Deep pressure over the trunk was distinctly felt, but could not be localised; he asked for the bedpan, but passed nothing but flatus, as on all previous days. A consultation of the medical officers of the hospital was held with a view to decide as to whether it would be desirable to interfere either by extension or by operation, or to place the patient in a fixed apparatus, and it was decided that it would be rather to the patient's interest to follow an expectant line of treatment, placing him in a fixed apparatus. Temperature at 8 A.M., 99° F.; at 8 P.M., 101° F.

12th.—A cushion under the neck was now well borne. There was a feeling over the trunk as of the pattering of mice running over it. There was some redness of the right elbow. Temperature at 8 A.M., 96·4°; at 8 P.M., 101°.

13th.—Towards the evening he complained of being "short of wind," and occasionally moved the muscles of the neck in laboured inspiration. Slight cyanosis was present about the lips and the ears. Temperature at midday, 100·2°; at 8 P.M., 102°.

14th.—Inspiration was laboured all day, the difficulty increasing as the day advanced, accompanied by a perpetual nodding of the head from the traction of the neck muscles at each inspiration. To the rhythm of this nodding he imagined that he heard the ringing of church bells (he was one of the ringers of the church bells in his parish). Several times in his delirium he threatened to commit suicide. Temperature at 8 A.M., 98°; at 8 P.M., 96°. There was some difficulty in swallowing late in the evening.

15th.—Died quietly at 2.30 A.M.

Necropsy.—Rigor mortis was well marked; there was much post-mortem hypostasis. Palpation with care over each separate spinous process failed to discover the site of the lesion. On reflecting the muscular flaps from the neural arches infiltration with extravasation into tissues hardened by coagulated inflammatory exudation was remarked opposite the left lamina of the fifth cervical vertebra, which was seen to be fractured about its centre in such a manner as to leave a gap of a quarter of an inch on the left side of the fifth arch. The neural arches of all the vertebræ were uncovered, but no further fracture was found, and the vertebræ from the atlas to the sixth cervical were removed for further examination. On reflection of the scalp a large discoloured patch was found just behind the right parietal eminence. On removal of the vertex the dura mater was found glued to the bone opposite the site of the bruised scalp and also at the corresponding part on the inner surface of the cerebrum, the medium of connexion being fresh lymph. The brain itself appeared to be healthy, but there was some fluid of a carmine tinge in the lateral ventricles. Further examination of the removed vertebræ showed the following: A longitudinal conjugate section through the vertebræ and included cord showed that the spinal canal was diminished by two-thirds of its extent through the projection backwards of the body of the fifth cervical vertebra, which was wedge-shaped and detached from the anterior common ligament. The cord opposite the site of pressure was greatly diminished in bulk and diffluent. Examination of the dry bones disclosed the following fractures:—Fourth vertebra: fracture of the right transverse process. Fifth vertebra: fracture of the left lamina and crushing and starring of the vertebral body. Sixth vertebra: fracture of the projecting lip on the superior surface of the vertebral body on the left side; detachment of the superior posterior edge of the body. No visceral lesion was discovered. The remainder of the spinal canal was not opened for lack of time.

Remarks by Dr. DAVIS.—Most of the symptoms in the case above reported have already been accounted for and their significance recognised: the contraction of the pupils in lesions above the second dorsal nerves; the fall of blood pressure from disconnexion of the vaso-motor nerves from the higher centres; the position of the arms in lesions involving the sixth cervical nerves.[1] Every case may, however, be the means of bringing about a more exact knowledge of some one or more particular symptoms. The case reported would seem to assist in the elucidation of three points: 1. Although

[1] Wm. Thorburn in Brit. Med. Jour., vol. ii. 1888.

the deep reflexes and most of the skin reflexes are lost in complete transverse lesions of the cervical cord, yet that the plantar reflexes may and often do persist is shown by the case just narrated, and by two cases in St. Thomas's Hospital Reports, vol. xx., in one of which the cord was actually divided. The remaining points I would put as questions. 2. Would not the retention of urine occurring in these cases be perfectly well accounted for if it were understood that the proper muscles of the bladder were paralysed, an atony of the bladder resulting? "The nerves to the bladder (and vagina) [from the pelvic plexuses] contain a larger proportion of spinal nerves than those furnished to the other pelvic viscera."[2] 3. Would the retention of fæces be accounted for by the failure on the part of the colon to pass the fæces on to the rectum, such failure being brought about by paralysis of the intestinal muscles and the automatic plexuses from continual stimulation by the excess of carbonic acid always present in the blood?

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

The Absence of Sugar from Normal Human Urine.—Two Cases of Knee-trouble with difficulty in Locomotion depending upon an Elongation of the Ligamentum Patellæ, treated by Transplantation of the Tubercle of the Tibia.

AN ordinary meeting of this Society was held on Feb. 14th, the President, Sir Andrew Clark, in the chair.

Sir GEORGE JOHNSON communicated a paper by Mr. G. STILLINGFLEET JOHNSON on the Absence of Sugar from Normal Human Urine. Mr. Johnson stated that all the tests for sugar in common use depended upon its reducing action; thus in Fehling's test the quantity of sugar was gauged by the amount of cupric oxide reduced by a known volume of the solution. All human urine—normal as well as pathological—exerted some reducing action upon cupric salts in boiling alkaline solutions. Insufficient familiarity with this fact not infrequently led to the conclusion that sugar was present in a sample of urine simply because a certain amount of cupric oxide had been reduced thereby. Non-saccharine urines of high specific gravity were especially liable to be pronounced saccharine, because such urines, being highly concentrated, were richer than usual in the normal reducing agents. The object of the author of the paper was to indicate the nature of these "normal reducing agents." A full account of the chemical details of his experiments in connexion with this subject will be found in the Royal Society's Proceedings, vol. xliii, pp. 493 to 534. He agreed with Dr. Pavy in attributing one-fourth of the reducing action of normal human urine to the uric acid which it contained. He was, however, of opinion that normal human urines were absolutely non-saccharine; and in proof of this he described his method of separating the kreatinin of urine from that secretion, which differed from all methods hitherto described in effecting a complete removal of that base from the unconcentrated secretion by fractional precipitation with mercuric chloride. The properties of the kreatinin thus isolated were different from those of any base hitherto described, and this difference was especially remarkable when its reducing action was compared with that of other kreatinins. These differences in properties between bases having the same empirical formula were attributed to differences in atomic arrangement—isomerism. Although the method adopted—precipitation by mercuric chloride—could not remove sugar from solution in the urine, the filtrate from the mercurial salt of kreatinin was found in normal urines to be destitute of reducing action; and the determination of the quantity of kreatinin present (by weighing its mercury salt), conjoined with a careful estimation of the reducing action of the kreatinin itself, proved that the entire reducing action of a normal urine might be accounted for by the uric acid and kreatinin which it contained, one-fourth of the whole reduction being due to uric acid, and the remaining three-fourths to the kreatinin. A beautifully crystallised specimen of the reducing kreatinin of urine was exhibited. In confirmation of Mr. Johnson's conclusion that normal human urine was non-saccharine, C. Schwartz has described a very delicate test for sugar which gives negative results with normal human urine.[1] This test was exhibited during the evening. It was performed as follows:—The urine was completely precipitated with lead acetate and filtered. The filtrate was rendered alkaline with potash and a solution of phenylhydrazine added. The mixture was well shaken and boiled. An orange colour developed, which was followed by an orange precipitate, when excess of acetic acid was added if sugar were present. Schwarz states, and Mr. Johnson had confirmed his statement, that normal urines give a negative result with this test. The conclusion was that sugar was absent from normal urine.—Dr. WILLIAM HUNTER differed from Mr. Johnson in regard to the limitation of reducing action to the uric acid and kreatinin, believing that there were other matters allied to hydrocarbons which effected the same change. He referred to a test with benzoyl chloride which threw down a compound of itself with carbohydrates. It was performed by adding to urine a mixture of 40 c.c. liquor potassæ and 5-10 c.c. benzoyl chloride. He considered that all normal urines contained carbohydrates more or less allied to glucose. One constituent, glycuronic acid, derived from certain articles of diet and drugs such as Borneo camphor, acted as a strong reducing agent. The second, known as the furfurol test, consisted in adding to a sample of urine a 15 per cent. solution of α-naphthol with 0·5 cc. of sulphuric acid, the presence of carbo-hydrates being indicated by a delicate violet colour. He thought that Mr. Johnson's conclusions were only applicable to quantities of sugar sufficient to have a pathological significance, and he did not interpret them as proving the complete absence of this substance in healthy urine. Too much importance should not be attributed to the negative indications of the phenylhydrazine test, as he considered that the reducing capacity of the healthy urine could not be wholly accounted for by kreatinin and uric acid. He commented on the brilliant appearance of the crystals and contrasted their aspect with that of ordinary commercial kreatinin.—Dr. CURNOW stated that he had been able, by means of the phenyl-hydrazine test, to detect so small a quantity of sugar as one-tenth of a grain in an ounce of urine. The test was, he thought, sufficiently simple to be used for clinical purposes. He adverted to the peculiar globular form assumed by the particles of the precipitate under high powers of the microscope. He had also added to non-saccharine urine solutions of urate of potass and of kreatinin in large quantities, and had found that these bodies did not in the slightest degree interfere with the efficiency of the test. It was on this account that he strongly recommended it for ordinary clinical uses.—Dr. HAIG welcomed the new test, and quoted a case in which Fehling's solution continued to be reduced by the urine while the patient adhered to a nitrogenous diet, but disappeared on his returning to a mixed diet; and inferred that the reduction of copper was not produced by sugar but by the excess of the nitrogenous extractives.—Dr. GEORGE HARLEY referred to the statement made about thirty years ago by Bence Jones that all normal urines contained a trace of sugar, which had been vigorously disputed by other observers, some attributing the reducing power to uric acid, some to kreatinin, and others to undetermined hydrocarbons. Udranzky first precipitated the reducing agents by means of benzoyl chloride; Widenski later separated this precipitate into starchy matters and a trace of grape sugar. He said that Fischer anticipated Schwartz in publishing the phenylhydrazine test. He still adhered to the idea that normal urines were not always free from traces of sugar, its presence depending on the individual and the diet.—Sir G. JOHNSON, in reply, said that he had not denied the presence of carbo-hydrates but only of sugar in normal urine. He had separated the reducing agents after mensuring the reducing power of the urine and had found that the uric acid and kreatinin exactly accounted for this, leaving no room for any other reducing agents. He accounted for the purity and excellence of the kreatinin crystals exhibited by his methods of separating them, which allowed the substance to precipitate gradually from the filtrate after various impurities, such as uric acid, had been brought down immediately by the addition of the mercuric chloride.

Mr. WALSHAM described two cases of Knee Trouble depending upon an Elongation of the Ligamentum Patellæ. The first case occurred in a young woman twenty-one years old. She complained of pain and difficulty in walking and that she was liable to fall suddenly without warning, from the patella slipping over one or other condyle. The falls were so frequent and unexpected that she was incapacitated for her duties as

[2] Quain, p. 665, vol. i.

[1] Pharm. Zeit., xxxiii., 465.

a housemaid. The patella could be dislocated laterally on either condyle, and with the knee bent at an angle of 90° it could be pushed up on to the front of the condyles of the femur, so that its anterior surface looked upwards instead of forwards. The elongated ligament was shortened by transplanting the tubercle of the tibia about one inch lower down the shaft. The wound healed by the first intention, and when the patient was last seen the knee-joint appeared normal and the patella could no longer be dislocated laterally or pushed abnormally upwards. The second case was in all respects similar and was treated in the same manner. Mr. Walsham had not found the condition described in the surgical text-books and in those special works on joint disease that he had consulted, nor was he aware that the transplantation of the tubercle of the tibia for shortening the patellar ligament had been hitherto done. He found that Dr. Shaffer of New York had described in the fourth volume of the "Transactions of the American Orthopædic Association" seven similar cases of elongation of the patellar ligament with knee-trouble during locomotion. In these cases no operation was performed and the results obtained by instrumental treatment were not satisfactory. Quite recently Mr. Walsham had met with a third case in the Orthopædic Department at St. Bartholomew's Hospital and concluded that the condition was not so rare as he had at first believed it to be. He summarised the signs and symptoms in his own and Dr. Shaffer's cases, and gave his reasons for shortening the ligament by transplanting the tubercle of the tibia instead of excising a portion of the ligament and attempting its union by suture. He thought transplantation of bone, with ligaments or tendons attached, might be found suitable for the treatment of other deformities. He had recently transplanted the posterior tubercle of the os calcis, with the tendo Achillis attached, for overcoming the elongation of the calf muscles in paralytic talipes calcaneus. A condensed account was appended of Dr. Shaffer's published cases.—Mr. GODLEE asked whether cases of lateral dislocation of the patella were not of the kind described, and referred to three cases which had come under his observation complicated with knock-knee.—Mr. KEETLEY mentioned two cases in which there had been abnormal lateral mobility of the patella with tendency to outward dislocation on kneeling. In one case he had removed a wedge of bone from the patella and shortened the internal aponeurosis.—Mr. WALSHAM, in reply, said that he had heard from Mr. Greig Smith of Bristol of a similar case under his care in which the ligamentum patellæ had been shortened by means of herring-stitch sutures.

MEDICAL SOCIETY OF LONDON.

A New Method of Treating Oblique Fractures of the Femur without Shortening.—The Physiology of Death from Traumatic Fever; a Study in Abdominal Surgery.

AN ordinary meeting of this Society was held on Feb. 13th, the President, Mr. Hutchinson, in the chair.

Mr. KEETLEY described an operation for the prevention of shortening and other forms of mal-union after fracture, especially oblique fracture of the long bones. It essentially consisted in the insertion of two pins of steel, thickly plated with silver, one into each fragment of the bone, not too near the fracture. Each pin had an arm at right angles to it. These two arms, lying outside the skin, were lashed together with silver wire after the fracture had been accurately adjusted. No incision was made, each pin being passed in through a simple puncture. The bones were perforated for the pins by Mr. Keetley's patellar bradawl (with a blade three inches and a half long). Two cases were described and one patient shown. Both had sustained fracture of the femur. In one the previous shortening had amounted to one inch and in the other to over two inches. One patient fell and refractured the bone two months after operation, but without reappearance of the shortening. In this case the pins had been left *in situ* for six weeks. No pain or rise of temperature occurred in either case. Mr. Keetley recommended that the operation should not be resorted to until ten days or a fortnight after fracture, so that there might be time to see what results ordinary modes of treatment were likely to give and also for effused blood to be either absorbed or organised. Of course strict antiseptic precautions should be used, but in an operation which made merely two punctures and required only two or three simple instruments entirely of plated and polished metal such precautions were exceptionally easy.—Mr. HUTCHINSON thought the method suggested was bold, ingenious and likely to be beneficial in some cases, but for his own part he adhered firmly to the long splint, with anæsthesia and rather over-extension to the extent of one inch of lengthening. He did not approve of discarding the perineal band, as was done by some surgeons in modern times.—Mr. CRIPPS remarked on the fragility of the pins shown. He thought the cases for which they might be applied were very few, and adverted to the danger of perforation by one fragment in the struggles resulting from the administration of an anæsthetic. The spasmodic contraction of muscles subsided by the third day, when the limb could be put up without any great effort.—Mr. OPENSHAW was in accord with the remarks already made by Mr. Cripps and thought it was an advantage to have the edge of the splint bare and notched so as to exert extension throughout the limb by bandages rather than by the stirrup alone.—Mr. KEETLEY, in reply, said he intended the method only for special cases. The want of rigidity of the pins was more apparent than real, and the power required to keep the fragments in position was not great.

Mr. JOHN D. MALCOLM read a paper on the Physiology of Death from Traumatic Fever: a Study in Abdominal Surgery. The object of the paper was to show that the phenomena of traumatic fever may be explained without assuming the existence of a poison circulating in the blood, and that the changes produced are brought about by peripheral stimulation of nerves acting on the nervous centres—a view already advocated from another standpoint by Dr. Hale White. It was pointed out that every injury brings about a devitalisation of tissue with a contraction of the vessels throughout the body, and it was suggested that the want of fresh blood in the area of stasis is the cause of the contraction of the vessels in fever. Papers by Olshausen[1] and Dr. Veschere[2] were referred to as corroborating Mr. Malcolm's view that death from ileus and pseudo-ileus is an important factor in abdominal surgery. The mode of death from these conditions was discussed. It was argued that distension of the intestine occurring during fever must cause a great increase in the contraction of the vessels already existing in consequence of the operation. Clinical evidence was adduced that the stronger the heart the slower was its action in fever. This was supported by the observation made by Professor Roy and Dr. Adami[3] that the heart is stimuluted by increased resistance in the vessels, and that the cardiac muscle is sometimes more than able to overcome the increased resistance, but sometimes it cannot do so. The evidence in support of Olshausen's and Dr. Veschere's view that pseudo-ileus leads to septicæmia was shown to be defective. It was argued that death from fever begins, not at the heart, but at the periphery, and is due to excessive contraction of the vessels shutting off the blood-supply from the various tissues. It was pointed out that the blood-supply to the inflamed area must also be diminished when the contraction of the arteries is very great, and that this must cause a return of inflammation of an unhealthy kind. It was further argued that when constriction of the blood-vessels occurs a necessity arises for the removal of a portion of the blood, which accounts for the sweating and excess of other excretions, and that destruction of blood necessitates more blood formation, but that as long as the vessels are contracting elimination must predominate; hence the emaciation. It was shown that devitalisation of tissue in a wound must also induce a physiological coldness and consequent necessity for increased heat locally; hence more heat is produced. The rest of the body then requires increased thermolysis, but as long as the local physiological coldness continues an excessive production of heat takes place, though not necessarily resulting in increased body temperature. It was suggested that in the septic and specific fevers the poison circulating in the system produces a wide-spread irritation and partial devitalisation of tissue, and reflexly induces the same effects as were attributed to the local devitalisation due to an injury. In such a case, if albuminuria and suppression of urine occur, the resistance to the flow of blood through the kidneys aggravates the fever, and may cause death in the same way as the resistance to the flow of blood through the mesenteric vessels does in a pseudo-ileus or in obstruction of the bowels following an abdominal section.—[We propose

[1] Centralblatt für Gynäcologie, January, 1888.
[2] Revue de Chirurgie, July, 1888.
[3] The Physiology and Pathology of the Mammalian Heart: Phil. Trans., vol. clxxxiii. B., p. 270, 1892.

to publish the paper *in extenso* in a future issue.]—Dr. HALE WHITE thought there was no doubt that in some cases traumatic fever was the direct result of peripheral irritation, and mentioned the rise of temperature associated with the passage of a gallstone or the existence of constipation. He referred also to the rise of temperature in meningeal hæmorrhage, in the status epilepticus and hysterical pyrexia, in all of which the absence of bacteriological influence seemed certain.—Mr. HUTCHINSON questioned if in the abdominal cases alluded to the absence of peritonitis could be affirmed.—Mr. MALCOLM, in reply, mentioned several cases in which no peritonitis could be discovered after death. Referring to some remarks by Mr. Alban Doran, he said he excluded cases in which there was an obvious source of septicæmia.

CLINICAL SOCIETY OF LONDON.

Subserous Uterine Hæmatocele in a Girl aged eleven.—Lipoma of the Broad Ligament.—Diaphragmatic Hernia in which Death was caused by Vomiting.—Generalised Vaccinia.

AN ordinary meeting of this Society was held on Feb. 10th, the President, Sir Dyce Duckworth, in the chair.

Mr. BARKER described a case of Subserous Uterine Hæmatocele in a girl aged eleven, simulating Acute Appendicitis; laparotomy was performed with success. Taking the view that the child was suffering from the latter disease in a most typical form, Mr. Barker opened the abdomen in the right linea semilunaris over the cæcum, but found the latter and the vermiform appendix perfectly normal. Some turbid, brownish serum, without lymph, flowed from the direction of the pelvis, and feeling in this direction the right Fallopian tube and ovary were found to be swollen and twisted, and when brought into view were seen to be quite black from blood effused under their serous coats. Tracing this effusion inwards it was found to expand into a large subserous hæmatocele behind the uterus. This tumour nearly filled the pelvis and corresponded with the swelling felt per rectum before the operation. This brownish serum in the pelvis had probably transuded from it; it was quite smooth on the surface and was inflamed. The condition was now recognised, and it was felt that no attempt should be made to remove the blood tumour. The serum was therefore sponged out and the abdomen was closed in the usual manner. The child made an uninterrupted recovery. On leaving hospital on the thirty-first day after the commencement of the last attack the hæmatocele, as felt from the rectum and vagina, had diminished in size. The patient was watched for a month or two subsequently, but there was no return of the symptoms suggesting any attempt at very early menstruation. The case was recorded as possessing pathological, clinical and surgical interest, and as being probably a rarity; Mr. Barker was unable to find any account of a pelvic hæmatocele in a girl so young as the patient in question.—Mr. TREVES dwelt upon the difficulties referable to the anatomical site in diagnosing appendicitis, and cited two cases illustrating this. One was that of a boy who exhibited all the classical signs and symptoms of intussusception, but on opening the abdomen to relieve the obstruction the condition was found to depend upon gangrene of the vermiform appendix. This was removed and the patient recovered completely. The other case was diagnosed, after consultation between two medical men, as enteric fever and was sent to the Fever Hospital, being subsequently transferred from there to the London Hospital, where the abdomen was opened in due course and the appendix found glued by inflammatory adhesions to the ileum opposite a Peyer's patch, which may have accounted in part for the close simulation to typhoid fever. After removal of the appendix this case also recovered.—Mr. BARKER suggested that one advantage about the otherwise objectionable word "appendicitis" was that it directed attention to the real site of lesion, which the older terms did not.—The PRESIDENT considered that the wrong impression prevalent was due to erroneous teaching, and was to be corrected by an improvement in this direction rather than by the introduction of a new and barbarous term.

Mr. TREVES gave an account of a large Lipoma of the Broad Ligament removed by operation, and drew attention to the rarity of the affection and to the cases of solid tumour of the broad ligament which had been placed on record.

Dr. HALE and Dr. GOODHART communicated a case of Diaphragmatic Hernia in which death was caused by vomiting. A man aged forty-nine, after much exposure in India, came home complaining of waterbrash with occasional vomiting. No organic disease could be detected. Pain was present at the ensiform cartilage and there was obstinate constipation. In spite of careful dieting, first with milk and farinaceous food and afterwards with peptonised milk, the vomiting became more frequent and profuse and was highly fetid in character. Death occurred apparently from exhaustion. Washing out the stomach gave only temporary relief. Post mortem all the organs were healthy, but the stomach and part of the colon were found lying in the left side of the thorax, having passed through a smooth-edged opening in the diaphragm of the size of a closed fist.—Dr. GOODHART added that the presence of a tympanitic note at the base of the thorax on the left side suggested for a moment the idea of such a displacement, but it was not seriously entertained, especially as the cases already on record had presented quite the opposite condition of dulness. The heart was raised, but was not displaced laterally.—Dr. HALE mentioned a case of the same sort at St. Bartholomew's Hospital, in which a tympanitic note over the protruded viscus had led to the performance of thoracentesis as for pneumothorax.

Dr. COLCOTT FOX read notes of two cases of Generalised Vaccinia. In both the infant was the only one thus affected out of many vaccinated from the same source. In each case the primary vaccination ran a normal course, and about the ninth day the vaccinated arm became covered with a dense aggregation of supplementary vesicles. These were quickly followed by others disseminated singly or in twos and threes over the unbroken skin of the scalp, face, trunk (front and back) and limbs. Fresh lesions evolved for two or three days and then abortive pustular lesions till the twenty-fifth day in the first case and till the eighteenth day in the second case. Hardly any scarring resulted and the mucous membranes were free. Dr. Fox then referred to the literature of the subject and discussed the arguments for and against the theories of a spontaneous evolution or auto-inoculation. The latter could not probably be absolutely excluded as a possible cause in any case, though there were obvious difficulties to meet in some cases. On the other hand, there was evidence that a spontaneous eruption was not improbable, as in inoculated variola, and cow-pox was now and again shown to be probably a modified phase of variola rendered non-infectious to man.

Dr. ACLAND communicated an account of a case of Generalised Vaccinia which had occurred in a child three months old after vaccination with humanised lymph from a perfectly healthy infant, forty-one removes from the calf, though supplementary vesicles had developed in an infant four removes back. Three other children had been vaccinated from the one he was describing without any complication. The arm had appeared normal on the eighth day, but secondary vesicles developed in the course of the next five weeks and pustules on the twenty-eighth day, the last appearing on the forty-second day. The vesicles closely resembled those of small-pox, in some developing into small, shallow ulcers, whilst the original ones coalesced and formed a large ulcer under a continuous scab. There was no infiltration of glands. The child died on the forty-ninth day. The mother, who had not been revaccinated, contracted the disease on the nipple. Dr. Acland said the clinical history was that of generalised vaccinia and drew attention to the lateness and persistence of the eruption. The condition might have been due to swallowing the lymph, since the lips had become inoculated, or to absorption from the original vesicles on the arm.

Dr. BARLOW thought such cases were very rare, and referred to a case of vaccinia gangrenosa described in the Royal Medical and Chirurgical Society's Transactions. He drew attention also to the papular eruption, like the first stage of small-pox, which affected the extremities in many cases after inoculation with calf lymph.—Dr. CHAPMAN considered the effects of calf lymph were far more severe than those of the humanised variety.—Dr. LONGSTAFF thought the severity of the changes were due to the vesicles being too close together, and recommended a single puncture on each arm.—Dr. COLCOTT FOX thought such cases might be more common than was generally believed. They were not apparent to most vaccinators because they occurred after the eighth day. He thought patients should be under observation until their sores were healed.

OTHER METROPOLITAN MEDICAL SOCIETIES.

HARVEIAN SOCIETY OF LONDON.—An ordinary meeting of this Society was held on Feb. 2nd, Mr. Malcolm Morris, President, in the chair. Mr. EDMUND OWEN read a paper on Post-nasal Growths in Children and showed two children with widely cleft palates, in whose throats the normal pharyngeal tonsil could be clearly seen. As regards the diagnosis of the affection, he thought that the long and vacant-looking face, the open mouth, the thin and compressed nostrils, the inability of the child to breathe through the nose, and the "stuffy" and dead voice were more than enough to establish proof of the disease. By curling the index finger round the soft palate the vegetations could be felt in the naso-pharyngeal cavity, were further proof of their presence required. In children, at least, posterior rhinoscopy was unnecessary; the mirror could teach the finger nothing. As regarded treatment, he urged the prompt removal of the hypertrophied tissue.—Mr. BUTLIN had been in the habit of operating under anæsthetics, and generally preferred chloroform. At first he had always placed the patient in the supine position, but during the last three or four years his patients had been placed on the side during the operation, with the thighs flexed and the head a little forward and on a low pillow. The blood then ran forwards into the cheek and could be constantly removed without interfering with the operation. He had had one fatal case in about 750 operations.—Mr. LENNOX BROWNE, in answer to the very pertinent question of Mr. Edmund Owen, "How did children get on before the discovery by Meyer of adenoid vegetation as a cause of deafness?" said that removal of enlarged tonsils alone exerted a certain, and in some cases a remarkable, improvement in the hearing. As in at least 90 per cent. of the cases of enlarged tonsils adenoids also exist, he (the speaker) had made it a fixed rule always to search for adenoids, and if present to remove them as an essential part of the operation of ordinary tonsillotomy.—Mr. T. MARK HOVELL, who showed a finger guard, cut from a piece of thick indiarubber tubing, which he used whilst examining patients for adenoid growths, said he found that without an anæsthetic some part of the growth was liable to be left and so to keep up middle-ear catarrh, but he now always employed an anæsthetic. He preferred, except in the case of young children, to begin with gas and pass on to ether, and subsequently to use chloroform administered by means of a Junker's inhaler.—Dr. SCANES SPICER considered that sufficient attention had not been given to the prevention or arrest of enlargements of the pharyngeal tonsil. These were largely the result of long-standing congestion in a tissue specially liable to hyperplasia in early life, and the congestion was the consequence of some obstruction, organic or temporary (catarrhal), in the nasal passages. In an obstructed nose, through which the air could yet pass, each act of inspiration led to diminished intra-nasal and naso-pharyngeal pressure posterior to the obstruction.—Dr. FELIX SEMON, whilst admitting that digital exploration was indispensable for diagnostic purposes in small children, had found that in somewhat older children posterior rhinoscopy often fully replaced the first-named certainly unpleasant investigation. He described the method of operation of which he was in the habit of availing himself (head but slightly hanging over the edge of the table, slight chloroform narcosis, usually Gottstein's curette, and only very occasionally forceps); and finished by observing that in his experience in no class of cases was a repetition of the operation more frequently required than in those in which the finger-nail had been used.—Dr. SILK, speaking as an anæsthetist, said he had used nitrous oxide and ether in a large number of cases, but had come to the conclusion that this combination distinctly increased the loss of blood, especially when the patient was lying down.—Dr. WILLIAM HILL considered that a more scientific name for these growths—viz., "hypertrophy of the pharyngeal tonsil"—should be adopted.—Dr. WILLIAM HOLLOWAY spoke in favour of the sitting posture.—Mr. OWEN replied.

HUNTERIAN SOCIETY.—The annual general meeting of this Society was held at the London Institution on Feb. 8th, when the following officers were elected for the ensuing year:—President: Mr. Frederick Gordon Brown. Vice-Presidents: Mr. Thomas E. Bowkett, Sir Andrew Clark, Bart., Dr. J. Dundas Grant, Mr. John Poland. Treasurer: Dr. F. Charlewood Turner. Trustees: Mr. H. Fotherby and Mr. F. M. Corner. Librarian: Dr. Arthur T. Davies. Orator for 1894: Dr. J. Dundas Grant. Secretaries: Dr. R. Hingston Fox and Mr. T. Horrocks Openshaw. Other Members of Council: Dr. Alexander Burger, Dr. F. J. Smith, Dr. E. C. Perry, Dr. G. Newton Pitt, Dr. Geo. E. Yarrow, and Messrs. W. Percy Reynolds, H. W. Denton Cardew, T. Mark Hovell, Henry J. Thorp, Francis R. Humphreys, Alfred H. Tubby and Percy Warner. The Annual Oration was afterwards delivered by J. S. E. Cotman, M.R.C.P. Ed., who had chosen for his subject "Physical Education." Diagrams and apparatus were exhibited in illustration of the theme. The Fellows and friends of the Society dined together at Wood's Hotel on the 10th inst.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—At the meeting on February 3rd, the President, Mr. F. SWINFORD EDWARDS, showed a specimen of Sarcoma of the Hand, and another of Carcinoma of the Rectum.—Mr. R. F. BENHAM exhibited a Growth at the Back of the Orbit following Dislocated Lens.—Dr. HENRY SUTHERLAND then demonstrated Various Methods of Artificially Feeding the Insane. The modes of feeding by the mouth which could be practised by the attendants were—(1) by spoon; (2) by two spoons; (3) by feeding cup; (4) by spoon and feeding cup; and (5) by Paley's feeder. The modes of feeding by the nose were (1) by spoon; (2) by feeding cup; and (3) by funnel. The modes which should be employed by a medical man only were by the mouth, stomach-tube, and by the nose (nasal tube). The advantages and disadvantages of each were explained, and the various methods were shown, a professional "sword swallower" being the subject chosen for operation.—Dr. ARCHIBALD GARROD read a paper on Chlorosis. The uniformity of type and almost constant character of the symptoms of chlorosis were noticed, and he then proceeded to discuss the more conspicuous symptoms of the disease as seen amongst hospital out-patients. Several members of the Society joined in the discussion which followed.—Drs. BARRY BLACKER and R. H. CLARKE communicated a paper on Light from a Medical Point of View. They referred, firstly, to the effects of light upon plants and upon the sickly inhabitants of narrow courts and dark, mountainous valleys, and pointed out that in climatic cures sunlight was the one indispensable factor, all other conditions, and especially that of temperature, being variable. Pigmentation, the most interesting result of exposure to the sun, was due to the action of light, though black pigment was disadvantageous to its possessor as regarded heat. The negro was pigmented in order to resist the excessive stimulus of light. Exposure in bright, cold weather was followed by tanning and irritation of the skin, of the conjunctiva and retina, effects which might be produced by light quite apart from high temperature. The effect of electric light upon the peripheral nerves according to the evidence of Mr. J. E. H. Gordon, supported by the experiments of Dr. Maklakoff of Moscow, was probably that of stimulation. Drs. Blacker and Clarke considered that the application of sunlight, and possibly also of electric light, to the whole surface of the body might be employed as a stimulant to the nervous system.

PROVINCIAL MEDICAL SOCIETIES.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—Dr. J. H. Bell presided at the meeting on Feb. 7th, when Dr. MOORHEAD showed a boy, aged six, the subject of Disseminated Spinal Sclerosis. At the age of fourteen months the child seemed healthy; there was no injury nor were there fits, but at two and a half he became easily tired, began to drag the toes, and had difficulties in speech. Later, pain and coldness of the feet were complained of, and spastic gait became marked. Now there is no tremor, vertigo, nystagmus, or amblyopia, the deep reflexes are exaggerated, ankle and rectus clonus being present, and the cutaneous reflexes normal.—Mr. FIRTH read notes and showed specimens from two cases in which the spine had been dislocated and fractured between the fifth and sixth, and sixth and seventh, cervical vertebræ respectively. In one an attempt was made to reduce dislocation, without relief to symptoms.—Mr. PETTITT described a case of Tumour of Optic Thalami and showed preparations from a girl, aged five, who had suffered a slight scarlet fever attack about three months previously, followed in ten weeks by dragging of the right leg, feebleness of the right hand and internal nystagmus on the right side. A week later other morbid conditions supervened, and death followed.—Mr. HORROCKS reviewed the prescribed teaching in relation to the

Surgical Treatment of Cancer of the Breast and dealt also with the anatomy and relations of the gland. He advocated the old method of wide and extensive removal of the breast. In doubtful cases exploratory incision was required.—Dr. RABAGLIATI had followed out cases of his earlier years and found they all succumbed in about three years. He thought he would revert to the old plan of completely altering the constitutional conditions.

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.—On Jan. 25th, Dr. Pollok, President, in the chair, Dr. LINDSAY described three cases of Malformation of the External Genital Organs occurring in one family, and showed one of the children. He was of the opinion that all were hypospadiac males, although two of them had been brought up as girls. The parents and six other children of the marriage were naturally formed.—The PRESIDENT then read a paper on the Prophylaxis and Treatment of Abortion. He said that there was a popular belief that very early abortions required neither care nor attention, but he was inclined to emphasise the very opposite—viz., the earlier the abortion the longer rest and the more care needed. He classified the causes under five headings—traumatic, mechanical, neurotic, toxæmic, and inflammatory. In discussing the treatment he dwelt upon the necessity of thoroughly emptying the uterus. He had always found it very difficult to do this with the finger, and he had found ovum forceps a failure. If rest and sedatives failed to prevent abortion, he plugged, and after from twelve to twenty-fours usually found the complete ovum come away on removing the plug. When there was retention of a portion he dilated with Smith's metallic bougies and employed the curette. After douching he mopped out the cavity with perchloride of iron to arrest hæmorrhage and inserted a strip of iodoform gauze in such a way as to plug the vagina. This was removed in twenty-four hours and an antiseptic douche used night and morning.

MANCHESTER MEDICAL SOCIETY.—On Wednesday, Feb. 1st, the President-elect, Dr. GLASCOTT, at the request of the committee, delivered an inaugural address on "Brief Notes on the Materia Medica of the Ancient Egyptians with reference to Eye Diseases." The address was well received, and after its delivery Dr. S. HOLGATE OWEN mentioned two cases of the milder form of Raynaud's disease. In each the disease manifested itself by the "dead fingers" and by symmetrical patches of "local asphyxia" on the front of the legs. Purpuric spots also occurred on the thighs. Both cases were in women, and in one the symptoms were preceded by an attack of hysterical paralysis. Dr. Owen drew attention to certain points of similarity between this disease and tetany, both as regards etiology and symptoms.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY. — This Society met on Feb. 1st, Mr. R. C. Chicken, F.R.C.S., President, in the chair.—Dr. KINGDON showed a case of Congenital Fibroma involving the right eyelid and zygomatic region.—Dr. HANDFORD brought forward a woman aged twenty-nine with Lupus Erythematosus of the dorsal surfaces of the fingers of both hands.—Mr. ANDERSON showed a case of Epithelioma.—Dr. CATTLE read for Dr. STAFFORD notes of a case of Pulmonary Embolism. A woman aged thirty-six was seized during the eighth month of pregnancy with intense dyspnœa, signs of cardiac failure and rusty expectoration. Labour occurred at the normal term and the patient completely recovered. He also read for Dr. Stafford notes of a case of Chylous Ascites in a man aged sixty-five, who suffered for ten years from temporary glycosuria, gastric and hepatic symptoms, hæmatemesis and melæna.—Dr. TRESIDDER read a paper on suggestions bearing on Preventive Medicine applied to dwelling-houses. He also read notes of three cases of Friedreich's Disease occurring in members of the same family. The disease commenced about puberty. In all three there was marked ataxy, absence of lightning pains and slow speech. Knee-jerks were present in two cases, and in two others there was a slow form of nystagmus.—Mr. PAUL showed for Mr. HATHERLY the Uterus removed by Porro's operation from a dwarf three feet eight inches in height and aged twenty-three. The patient was much deformed by rickets, the conjugate of the pelvis measuring an inch and a half. The patient recovered without a bad symptom. The child was alive.—Dr. HEELIS showed a Piece of Metal which had been embedded for some time in the scalp of a young woman and had caused obscure symptoms.

SHEFFIELD MEDICO CHIRURGICAL SOCIETY.—At the meeting on Jan. 25th, the President, Mr. Simeon Snell, in the chair, Mr. ARTHUR JACKSON read the notes of a case of Cancer of the Breast in a man.—Dr. SINCLAIR WHITE showed a youth, aged eighteen, with Congenital Hydrocele.—Dr. HUNT showed two Dermoid Cysts which had been removed by Mr. Arthur Jackson from a woman twenty-nine years of age. The patient made a good recovery.—Dr. HAMEL read notes of a case of Ruptured Kidney in a woman aged twenty-two, who had suffered from lead poisoning. She was found alone and unconscious, and it was supposed that she had been the victim of an assault. At the post-mortem examination all the organs were found to be healthy with the exception of the left kidney in the middle third of the posterior surface, of which there was a laceration nearly an inch in length.—Dr. GWYNNE read a paper on Diarrhœa in Children. He deprecated a minute classification of diarrhœa as anatomically unsound and clinically valueless. In the treatment of epidemic autumnal diarrhœa delay was dangerous in very young children. In such cases he would at once stop the milk supply. He was sure of the good effects of calomel or mercury with chalk, with small doses of Dover's powder, and irrigation of the bowels with warm water containing tannic acid or acetate of lead. Erosions of the mucous membrane and innumerable small ulcers were well marked over most of the large intestine.—The President, Dr. Sinclair White, Dr. Samson Mathews, Dr. Arthur Hall, Mr. Wightman, Dr. Martin and Mr. Dale James joined in the discussion which followed.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—The meeting on Friday, Feb. 3rd, was devoted to the exhibition of clinical cases, Dr. Pitt, President, being in the chair.—Dr. GARTH showed for Mr. Poland a man who had made a good recovery after operation for Strangulated Congenital Hernia, with removal of sac. He also showed a woman, aged seventy, with Epithelioma of the Upper Lip.—Dr. PITT exhibited a pathological specimen of Arterio-venous Aneurysm formed by the left iliac vein and aorta at its bifurcation. He also showed Spinal Cord Sections from (1) Ataxic Paraplegia; (2) Charcot's Disease of Knee; (3) Infantile Paralysis; (4) Syringomyelia, with Glioma of Cord. — Dr. ERNEST CLARKE showed a piece of steel 2 mm. square and 0·5 mm. thick, which he had removed from beneath the conjunctiva on the under surface of the left upper lid of a man, where it had remained for twenty-two years.

Reviews and Notices of Books.

Médecine et Mœurs de l'Ancienne Rome d'après les Poètes Latins. Par le Dr. EDMOND DUPOUY. Deuxième Édition, Revue et Corrigée. Paris: Baillière et Fils. 1892.

Syphilis in Ancient and Prehistoric Times. By Dr. F. BURET. Translated from the French, with Notes, by Dr. A. H. OHMANN-DUMESNIL, M.D., Professor of Dermatology and Syphilology in the St. Louis College of Physicians and Surgeons. Vol. I. Philadelphia and London: F. A. Davis. 1891.

WE have bracketed these two publications together as dealing, on the whole, with the same subject, though, as will be seen from their respective titles, Dr. E. Dupouy confines his strictures to Ancient Rome, whilst Dr. Buret extends his observations to the whole world of antiquity. Neither is addressed "virginibus puerisque," but rather to those of the profession who interest themselves in the pathological sequelæ of vices common to every period of the world's history.

Dr. Dupouy calls his book a "second edition," but, except for the omission of some very inaccurate engravings representing the "baths of antiquity," we see little difference between it and the first, published in 1885 and already noticed in THE LANCET. There are the same number of pages and nearly the same misprints in each. At p. 12, for example, the "tumemtibus" of the first edition has not been corrected into "tumentibus" in the second; at p. 13 "anelhitus" and "venis" still do duty for "anhelitus" and "ventis"; and at p. 16 "pantherum" and at p. 18 "erat" continue to violate sense and quantity alike. Even in the first paragraph of the preface an astounding historical blunder is allowed to remain: "Antonius Musa, Pline l'Ancien, Arétée et Cælius Aurélianus apparaissent presque en même

temps que l'Hippocrate latin." By the "Latin Hippocrates" the author means Celsus, and he asks us to believe that that writer, whose date is that of the Emperor Tiberius (A.D. 14–37), was nearly contemporary with Aretæus, whose "floruit"—according to the best authority—is at least a hundred years later, and with Cælius Aurelianus, who lived at the end of the fourth, or more probably in the first half of the fifth, century A.D.! After this stumble on the threshold it is hardly likely that the author's subsequent progress can be very satisfactory. Under Martial, for example, we find him ignorant of the changes wrought in the criticism of that author by Friedländer's monumental edition (1885), whilst the badly accented Greek and the false quantities that disfigure the extracts in the first issue of his treatise are still maintained in the second. For those who can tolerate such *maculæ* the book is not without interest, gathering together as it does and conveying in a clear, even vivacious, style a great mass of detail on the immoral life of antiquity and on the pathological and therapeutic doctrine for which that life supplied the material. But to earn the favour of more exacting and scientific readers it must be thoroughly revised by the light of better texts and more recent commentaries than the author seems to have consulted.

The second publication is much more elaborate, though it cannot, any more than the first, be considered to reflect the latest and best scholarship. On the origin of the word "syphilis" Dr. Buret has no light to shed. Instead of following the sound lead of the great philologist and physician Littré, according to whom "on ne connait pas l'étymologie de ce mot," he falls back on the exploded etymology from σύν, with, and φιλία, love. He then seeks to trace the disease back to ancient times, when again his authoritative compatriot could have told him, "on ne rencontre aucune indication précise de la syphilis proprement dite dans les médecins de la Grèce et de Rome et cela jette le doute sur ce point d'histoire médicale." Unadmonished by this dictum he goes back even to prehistoric epochs, and by a *catena* of extracts from previous writers, the majority of whom carry no special weight, he finds syphilis amongst the Chinese "five thousand years ago," amongst the Japanese, the Egyptians, the Assyrians and Babylonians, the Hebrews and, *a fortiori*, amongst the Greeks and the Romans. It awakens more than suspicion as to his inductions when we find that none of the really great historians of medicine—Häser, for example, or Puschmann—venture to extract from his citations the precise references to syphilis he himself does; and our suspicions are confirmed when we find him quoting as a decisive authority that translation of the Ayurveda by Hessler which Häser expressly cautions his readers against as "sehr mangelhaft" (very defective). When we come to classical antiquity we find his special pleading and his love of "broad translation," as he calls it, still more marked, no doubt because he is treading ground already carefully traversed by scholars who have failed to "read into" his authorities the meanings he discovers in them. Take, for instance, his interpretation of the well-known passage in Thucydides (II., 49) describing a symptom of the plague at Athens. One of the last stages of that disease, says the historian, was its attack on the extremities, including the pudenda; and this latter circumstance is actually pressed by Dr. Buret into the service of his argument that syphilis must have been a factor in the plague! Not more fortunate is he in his Roman chapter, where he makes Horace (Odes, I., 37) contribute to the thesis that syphilis must have been common in his times. The lines are familiar to all, but we venture to say that no editor of authority has interpreted them in Dr. Buret's sense. The reader has but to refer to Hirschfelder's revision of Orelli's Commentary (Berlin, 1886) to bear out our criticism. Nor is he any more fortunate in his appeals to Martial, of whose one good editor (Friedländer) he seems to be ignorant. Many passages he no doubt adduces from that exceedingly plain-spoken satiriser of the Rome of Domitian, but he cannot lay his finger on one which can be accepted as sustaining his thesis. At the same time the book is not without value for the fidelity with which it depicts the immoral side of antiquity, and to all who are not nauseated by such details it has a certain interest of its own.

The Year-book of Treatment for 1893. A Critical Review for Practitioners of Medicine and Surgery. London: Cassell and Company.

WHEN a book such as this has reached the ninth year of its existence the work of criticism becomes an easy task. Changes of contributors and of arrangement have to be noted, and the method of each contributor has to be considered with reference to past work. The changes are few. Death has removed Dr. James Ross of Manchester from association with Dr. E. S. Reynolds in the preparation of the section dealing with diseases of the nervous system, including insanity. Two new contributors have been added—Dr. Dudley Buxton, who has charge of an article on Anæsthetics, and Professor W. H. Corfield, who writes a separate article on Public Health and Hygiene. Space has been found for these two new articles, partly by condensation (which affects mainly the articles upon Diseases of the Heart and Circulation and upon Diseases of the Lungs and Organs of Respiration) and partly by a new arrangement of the selected list of new books, new editions and translations, by which some ten pages have been saved. On the other hand, the articles upon Infectious Fevers and Diseases of the Skin have notably increased in length; so that the absolute bulk of the "Year-book" is increased by some ten pages—a small matter when the importance of the new articles is considered.

In dealing with Diseases of the Heart and Circulation Dr. Mitchell Bruce follows a new "natural order" of arrangement which is fully adequate to the materials he has to work upon. The chief interest centres round the use of digitalis, its active principles and its succedanea. Dr. Markham Skerritt writes of the Diseases of the Lungs and Organs of Respiration, the treatment of pneumonia with oxygen gas and the hygienic and constitutional treatment of pulmonary tuberculosis being the main topics of discussion. The article upon diseases of the nervous system, including insanity, is now in the sole charge of Dr. E. S. Reynolds of Manchester, who finds abundant material in the various remedies suggested for the treatment of insomnia and for the relief of pain. Dr. R. Maguire writes the article upon Diseases of the Stomach, Intestines and Liver; while the article upon Diseases of the Kidneys, Diabetes &c. comes from the pen of Dr. C. H. Ralfe, who devotes most attention to diabetes, though he mentions at length the Croonian lectures of Sir William Roberts; reference to the same lectures recurs in the article upon Gout and Rheumatism, by Dr. A. E. Garrod. Dr. Sidney Phillips deals with Infectious Fevers. The short article upon Anæsthetics, by Dr. Dudley Buxton, introduces some useful novelties. Mr. Stanley Boyd's contribution on General Surgery is long, but the subject is treated with lucidity. Mr. W. J. Walsham writes the article on Orthopædic Surgery and regrets the paucity of material in this department. The article on Surgical Diseases of Children, by Mr. Edmund Owen, displays many characteristic indications of his keen criticism. Mr. Reginald Harrison, Mr. Alfred Cooper and Mr. Ernest Lane respectively write efficient articles upon Diseases of the Genito-Urinary System, Diseases of the Rectum and Anus, and Venereal Diseases. The work of Dr. G. Ernest Herman, Dr. M. Handfield-Jones, Mr. Malcolm Morris, Mr. Henry Power, Mr. G. T. Field and Mr. Barclay J. Baron is also highly commendable. The Summary of the Therapeutics

of the Year, by Dr. W. G. Smith, contains a curious misprint (many times repeated) which appears to cast doubts upon the alkaloidal nature of cocaine. Professor Corfield's article on Public Health and Hygiene is admirable as a summary of the hygienic work of the year, but it does not give many references to the sources of information. Viewed as a whole, the "Year-book of 1893" is a satisfactory production fully equal to previous editions, and the numerous writers engaged on the compilation are to be congratulated upon having completed a work of such general utility.

LIBRARY TABLE.

The Journal of Physiology. Edited by MICHAEL FOSTER and Others. Vol. XIII. Supplementary Number. Cambridge Engraving Company, Cambridge. December, 1892.—In a slip issued with this number of "The Journal of Physiology" it is stated that the increasing supply of material accepted as suitable has led the editors to issue a volume no longer, as heretofore, annually, but as soon as about 500 pages have been completed. This augurs well for the progress of physiology in Great Britain, and if the quality of the memoirs and articles published be maintained at the present high standard the journal may continue to rank with the best foreign periodicals devoted to the same subject. The present part contains the following papers: (1) On the Relation of the Posterior Root to the Posterior Horn in the Medulla and Cord, by H. Tooth; (2) On the Larger Medullated Fibres of the Sympathetic System, by J. N. Langley; (3) A Method of obtaining the Specific Heat of certain Living Warm-blooded Animals, by W. Hale White; (4) On Lacto-globulin, by R. T. Hewlett; (5) Does Bone contain Mucin? by R. A. Young; (6) The Proteids of Liver and Kidney Cells, by W. D. Halliburton; (7) The Influence of Light on the Gas Exchange in Animal Tissues, by C. A. Ewald; (8) Graphic Records of the Action of Chloroform and Ether on the Vascular System, with a plate, by J. A. MacWilliam; and, lastly, the Effects of Drugs and other Agents upon the Respiratory Movements, by H. C. Wood and D. Cerna.

The Practical Guide to Algiers. By GEORGE W. HARRIS, Third Edition, thoroughly revised up to date and enlarged. London: George Philip and Son. 1893.—The rapid sale of two considerable editions of this compact little book attests the favour with which it has been received by the travelling public. The demand for it also shows the increasing attraction Algeria possesses as a winter resort. Algiers itself is gradually receding into the background in this respect, and now that the railway is extending southward it is to Biskra, "the Queen of the Desert," that "seekers for sun" are drawn in ever greater numbers. Mr. Harris rightly claims for Biskra a "climate without parallel." When London is wrapt in fog and Paris mantled with snow, when both Rivieras—the Riviera Ponente and the Riviera Levante—are swept with winds from the ice-chilled Alps or Apennines, Biskra remains a perfect sun bath, with a temperature between 70° and 80° F. in the shade, with azure skies overhead and a glorious landscape all around, inviting the visitor to the green oasis and the desert spring, where "dial-like, to portion time, the palm tree's shadow falls." That its attractions were not appreciated long before must be laid to the charge of the French occupation. Hotel accommodation is also insufficient. There is, moreover, no regular English Church service, nor is there even a resident physician holding British qualifications—two grave defects which, thanks to local supineness, still deter many an intending sojourner. With the inauguration of the promised "Club-train," however, between Algiers and Biskra, the "Queen of the Desert" may be expected to enlarge her resources and to extend her hospitality to an augmented population of "sun-seekers."

Catalogue of Specimens of Morbid Anatomy and Pathology in the Museum of the Westminster Hospital. By CHARLES STONHAM, F.R.C.S. 1892. — This descriptive catalogue has been compiled by Mr. Charles Stonham, assistant surgeon to the hospital. Seldom, if ever, have we met with a museum catalogue so excellently prepared in every way. By means of a full index at the commencement of the volume we are able to turn at once to any class of specimens we wish to refer to, and in finding it obtain full information. Mr. Stonham modestly states in his preface that he has "endeavoured to explain by short headings the chief morbid lesions to be met with in the various pathological processes which the specimens illustrate, believing that by this means the student of morbid anatomy will more readily obtain a fair grasp of the subject of fundamental importance in the rational study of disease." In attempting this Mr. Stonham has made the "catalogue" a most valuable work of reference, and all future students will have to thank him for making their studies in this direction easy and profitable. We congratulate him on the success of his labours, and trust that the compilers of similar catalogues at other hospitals will adopt his excellent suggestions.

Cottage Sanitation. By HECTOR MCLEAN WILSON, M.B., B.Sc. With Preface by T. PRIDGIN TEALE, F.R.S. Published by the Royal Agricultural Society of England, 12, Hanover-square, London, W. 1893.—This excellent little pamphlet is the outcome of a meeting of several experienced medical officers of health. It is drawn up by Dr. H. McLean Wilson, under the supervision of Dr. Cameron and Mr. T. Pridgin Teale, from notes taken at the meeting. The paper contains fourteen illustrations, which very clearly illustrate the text. The aim of "Cottage Sanitation," as described in the preface, is to make suggestions of as simple a kind as will meet the necessity of each case, and to set forth a minimum of sanitary requirement such as may reasonably be attained in every country village. The pamphlet is a cheap reprint, for distribution in rural districts by sanitary and parochial committees. It is 3*d.* per copy or 2*s.* per dozen, and is well adapted to serve the purpose which its publication is designed to fulfil.

The Veterinary Journal. London: Baillière, Tindall & Cox.—The number for January well maintains the reputation of this useful journal, by the value and interest of the articles it contains. Amongst the original communications is one on the Koch test for tuberculosis in cattle, which affords strong evidence in favour of tuberculin as an aid to the diagnosis of that very serious disease in bovines. The paper is by Professor Armsby of the Pennsylvania State College. There is another on opacity of the hyaloid membrane of the vitreous humour in a horse's eye, and there are several very interesting papers on other matters connected with animal medicine and surgery, home and foreign.

Dod's Peerage, Baronetage and Knightage of Great Britain and Ireland for 1893. London: Whittaker and Co. and George Bell and Sons.—We have received a copy of this useful index to the titled classes of the United Kingdom and to the colonial, diplomatic, military, naval and civil service officers of the State. The work—which is too well known to need any description from us—has now attained its fifty-third year of publication and has been brought up to date, the appointment of Sir J. P. Caron, K.C.M.G., to the Postmaster-Generalship of the new Canadian Ministry being the last entry. An obvious printer's error occurs on the contents page at the fourth line from the bottom, where "Colonial Precedence" should evidently be "Clerical Precedence."

Kelly's London Medical Directory for 1893. London.—As may be supposed, the fifth year's issue of this work, which has just come to hand, varies but little from the preceding volume save in the necessary addition of fresh names. The enumeration to a larger extent of the works published by the respective authors will no doubt be useful and acceptable.

Analytical Records
FROM
THE LANCET LABORATORY.

DIURNULES.
(PARKE, DAVIS AND CO., NEW YORK.)

RECOGNISING the inconvenience which the physician often meets with when he wishes to prescribe ordinary minimum or maximum doses of such bodies as the alkaloids, glucosides and similar principles, the above firm of manufacturing chemists subdivide the maximum full daily dose of the substance into twelve small equal doses. In the shape of granules the medicaments thus subdivided are designated, not inaptly, "diurnules," which are distinguished from parvules, pink granules and regular white granules by a yellow-coloured coating. The prescriber has therefore but to remember that twelve diurnules represent the full daily adult dose of the different medicaments as exhibited in that shape. The condition of the patient, of course, will lead him to vary the dose from one diurnule every two hours to one every three, four or six hours, in accordance with the requirements. We have recently received for inspection and examination a pocket-case, elegantly finished in morocco, containing in the form of diurnules twelve typical substances. Notwithstanding the minute quantity of medicament which is contained in many of the diurnules, we have not failed to isolate and recognise the principle in any single example, although one diurnule only was operated upon for this purpose. This bears testimony both to the reliability of the preparations and to the delicacy of chemical tests. In the case of the atropine sulphate diurnule, for instance, twelve of which contain $\frac{1}{60}$ gr. of the sulphate—one diurnule ($=\frac{1}{720}$ gr.) responded distinctly on proper treatment to the test known as Vidali's, which depends upon the production of a violet colour when the extracted alkaloid is evaporated with nitric acid and afterwards moistened with alcoholic potash. A single diurnule of arsenious acid, again, containing only $\frac{1}{240}$ gr., yielded all the characteristic reactions of arsenic. The aconitine diurnule, containing only $\frac{1}{720}$ gr. of the alkaloid base, gave a residue when suitably treated which produced the peculiar numbing sensation upon the tongue. Similarly, sufficient alkaloid (quantities varying from $\frac{1}{4}$ gr. to $\frac{1}{120}$ gr.) was contained in the diurnules of morphine, gelsemine, strychnine, physostigmine and other bodies to admit of their recognition by chemical means. Diurnules are obviously models of pharmaceutical elegance and efficiency, and they serve admirably to illustrate the assistance which pharmaceutical skill affords the physician in attaining accuracy of dosage and ease of administration.

LENTILINE BISCUITS.
(E. MARRIOTT AND CO., HAVELOCK-ROAD, HASTINGS.)

Chemical analysis assigns to lentils an extraordinary nutritive value, inasmuch as they contain twice the amount of proteids contained in wheaten flour, the same amount of fat, 12 per cent. less starch, and 1 per cent. more mineral matter, in which iron and phosphates abound. The composition, texture and flavour of the above biscuits are alike excellent, the peculiar taste of the lentil blending remarkably well with that of the entire wheat meal. Both cereals were readily recognised under the microscope. The biscuits afford a portable and palatable form of one of the most nutritious pulse foods.

MALTO-PEPSIN.
(HAZEN MORSE, TORONTO, CANADA, AND MESSRS. BURGOYNE, BURBIDGES & CO., 16, COLEMAN-STREET, E.C.)

In this preparation are skilfully combined the digestive agents pepsin, pancreatin and diastase (exsiccated extract of malt) with the acid lactophosphate of lime. The presence of lactophosphate of lime was confirmed on analysis, whilst about the activity of the digestive principles referred to there can be no doubt. Thus, white of egg was rapidly converted into peptone, and starch into dextrine and sugar. Apart from its trustworthy nature as an efficient aid to digestion, malto-pepsin may also be regarded as possessing properties which make it of tonic value. The formula is an excellent one.

CAFFYN'S LIQUOR CARNIS.
(THE LIQUOR CARNIS COMPANY, 50, HOLBORN VIADUCT, E.C.)

This valuable food has on a previous occasion found a place in our records of analytical work. It has since been considerably improved in many essential respects, not the least of which are flavour, keeping properties on exposure to air, and mode of manufacture, in which, it should be added, provision is made to secure the product against all risk of infection. With regard to analytical results they are as satisfactory as before. The moisture amounted to 55·40 per cent., the meat extractives and carbohydrate menstruum to 42·07 per cent. (containing 4 per cent. of nitrogen) and the mineral matter to 2·20 per cent., consisting chiefly of valuable phosphates with a minimum of common salt. The excellent state of preservation of the vital principles of beef is apparent from both chemical and spectroscopic examination. The albuminoids of the meat, for example, are present in an unaltered state, as is evidenced by the preparation becoming solid on heating; and a diluted solution exhibits the characteristic absorption spectrum of fresh hæmoglobin, the two lines disappearing from the solution on boiling. Liquor carnis is free from objectionable preservatives, and, having regard to its high nutritive value, is really a powerful as well as an economica food and restorative.

GRANULATED OATMEAL.
(SMITH AND SONS, MID-CALDER, MIDLOTHIAN.)

We must express approval of the process by which this excellent meal is produced. It is a granular preparation and the grains are of equal size, so that it may justly be claimed that the operation of cooking would be more uniform and complete—a matter of some importance, especially where enfeebled digestions are concerned. Furthermore, the meal is entirely free from husk and possesses an excellent oaten flavour. It is evidently the refined product of a valuable food.

BLAUD'S PILLS.
(SOUTHALL BROTHERS AND BARCLAY, BIRMINGHAM.)

The real value of a Blaud's pill depends of course upon the amount of ferrous carbonate it yields on double decomposition. In this respect we find the pills of the above firm satisfactory, both the amounts of iron and alkaline carbonate in which were determined by analysis. The iron is almost entirely present in the ferrous condition, whilst the alkaline carbonate was slightly under the amount necessary to completely decompose the ferrous salt. The pills keep perfectly, but the coating is, we find, a somewhat hard substance and liable to crack.

DIABETIC FOODS.
(ROBERT MCVITIE, 23-25, QUEENSFERRY-STREET, EDINBURGH.)

From each and all of these preparations it is claimed that starch has been carefully excluded. They comprise gluten rolls, gluten bran rolls, gluten and almond bread, almond biscuits and imitation oatcake. In the first three mere traces of starch were found, but in the almond biscuit and the imitation oatcake results of an absolutely negative kind were obtained on testing. With regard to palatability, the oatcake is especially to be commended, the bran rolls and the almond biscuits coming next in this respect. It is very satisfactory to observe the attention which manufacturers are now directing towards the improvement of the flavour and character of the food intended for the use of patients suffering from diabetes. The above-named preparations afford evidence of this.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 18, 1893.

THE lecture on Antiseptics given by Sir JOSEPH LISTER in the London Post-graduate Course was a demonstration not merely of the system with which that surgeon's name has been associated, but of the enormous advances that have been made in surgery during the last couple of decades, and finally of the scientific accuracy of almost every observation and prediction made by him as the initiator of the system. Anyone who has followed the development of antiseptic surgery must be struck by the almost marvellous continuity of the original idea throughout every step. The end to be attained was at the very outset stated to be the same as is now known to be necessary, the only real progress that has been made being in the direction of eliminating unnecessary complications and of using materials which will give the desired result whilst exerting the least possible deleterious influence on the skin and exposed tissues; and it must be confessed by the veriest sceptic that, on careful analysis of the methods described in his recent lecture, Sir JOSEPH LISTER may congratulate himself that, although he has since simplified and improved his method and has been able to do away with small increases of tension and minor irritations which were sometimes mentioned in earlier records, he from the very outset protected the patients from whom these records were taken against septic mischief, and obtained results which up to that time had never been effected in hospitals with similar classes of patients—results as good, indeed, as those now obtained in the best appointed hospitals in which the antiseptic system is in use. Most of those who have placed themselves in a position of antagonism to the antiseptic system have directed their attacks against the details of the method rather than against the principle on which it is founded. First the spray was denounced, and undoubtedly its use was attended with many serious disadvantages, not the least important of which was that it deluged the tissues laid bare by the surgeon's knife with a powerful irritant which necessarily devitalised the cells of which this tissue was composed; but in the earlier days of antiseptic surgery, when pyæmia and septicæmia, not to speak of hospital gangrene, had made their home in many of our hospital wards, Sir JOSEPH LISTER and those who were working under his guidance, believing as they did that these conditions were the result of germs which in some way or other were localised in the hospital, felt it to be a duty to guard every avenue by which such germs might make their way to either surgical or accidental wounds. Exception may be taken by some critics to minor changes of methods, but the possibility of making such changes could only be demonstrated after a more thorough knowledge of the mode of propagation of bacteria, of their life-history and ways of transmission from point to point, had been obtained. Knowing as we do now that septic material is far more frequently introduced by means of unclean hands, dirty instruments, or foul dressings, we have indeed cause to congratulate ourselves that the germs may be attacked with the least possible trouble and without the use of superfluous chemical antiseptics or too elaborate precautions; but the fact remains that we still adhere in the strictest fashion possible to the principles Sir JOSEPH LISTER enunciated even when he was carrying out his earliest experiments.

The return to the use of carbolic acid, or rather the increased use of this substance and a more perfect reliance upon its virtues as the best available antiseptic at our disposal, give remarkable evidence of Sir JOSEPH LISTER'S scientific instinct (if such a term may be used), and it is now noticeable that not only in the operation theatre and in the wards have surgeons come to look upon this substance as the most convenient and reliable antiseptic for their purposes, but the most convincing corroborative evidence as to the germicidal properties of this substance has been obtained in the course of experimental investigations carried out in various laboratories, both at home and abroad.

It is scarcely necessary to point out that all the resources of antiseptic surgery have been devoted to the keeping out of micro-organisms from wounds, and for this reason antiseptics whose special virtue lies in the fact that they act as such only when brought in contact with the tissues themselves or with the fluids that come from a wound are regarded with some distrust. Substances belonging to this group—iodoform, for example—may undoubtedly be of very great service where a special end is to be obtained; and it can be well understood that, where tuberculous tissue has been removed, or where old sinuses have been scraped, the actual introduction of iodoform into the wound during the earlier stages of treatment may prove of very great value; but it can scarcely be maintained that this treatment of fresh wounds by plugging with iodoform can have any advantage over the ordinary method of treatment. In fact, most people would argue that the mechanical interposition of a powder between the raw surfaces would interfere in some degree, at any rate, with the rapidity of healing, so that where the presence of micro-organisms is not already suspected iodoform should not be too frequently employed.

As regards the cleansing of the skin before operations, there can be little doubt that the results obtained by those who have used carbolic acid are very different from those obtained by the German school, who rely so largely on corrosive sublimate. This latter substance, as originally pointed out by Professor KOCH himself, combines very rapidly with albuminoid material of all kinds, and in this combination becomes fixed and almost inert. Its action upon the organism depends upon its power of combining with the protoplasm of that organism, and if its "affinities," as the chemists say, in that direction are satisfied it does not go out of its way to attack any other protoplasm, so that as soon as it comes in contact with the superficial layers of the skin it unites with the protoplasm of the cell and does not make any attempt to reach the micro-organisms, which, as Sir JOSEPH LISTER points out, are so numerous in the sebaceous and other ducts. Carbolic acid is less open to objection on this score, for, although it does undoubtedly combine with the protoplasm, it has greater penetrating power, especially as regards the fatty or sebaceous matter. It may be termed a much more searching antiseptic than bichloride of mercury and so far therefore is more trustworthy as a preparatory cleanser of the skin. This

perhaps is due in part to its extreme volatility, which property, however, is one of its chief disadvantages, a disadvantage that Sir JOSEPH LISTER has overcome by using with it his double cyanide of mercury and zinc. The double cyanide, an exceedingly insoluble substance, appears to exert a most powerful inhibitory action on the growth of micro-organisms, and at first sight it would appear that it might be used instead of the carbolic acid, had it not been found that, powerful as its inhibitory action is, its actual germicidal power is comparatively slight. With these two substances at command, however, all the essential properties of a good dressing are secured: the carbolic acid is used to kill the germs which under various conditions might surround or come in contact with the lips of the wound; the double cyanide, in the form of a slightly soluble powder, remaining on its part to inhibit the growth of germs which might infect the saturated dressing, a function that the volatile and soluble carbolic acid cannot perform, as on account of these properties it is soon removed from the dressing.

It is curious to note that Sir JOSEPH LISTER uses the peptonising power of certain micro-organisms to free his sponges from the fibrin that is deposited in their meshes, and it might be objected that those who have not Sir JOSEPH LISTER'S exact knowledge of the antiseptic properties of the various substances used, and who cannot distinguish sufficiently clearly between the mode of action of different antiseptics, can scarcely realise the importance of destroying any putrefactive micro-organisms that might remain in the sponge. If Sir JOSEPH LISTER'S methods are adhered to in their entirety, and if his principles are thoroughly mastered, there is no danger to be apprehended from the use of sponges so prepared.

From the whole of the demonstration, however, there is much comfort to be derived, for we are assured that all nature's forces are working in favour of the surgeon and his patient; the blood serum is making an effort to destroy any micro-organisms which may make their way into the wound, whilst phagocytosis, as demonstrated by METCHNIKOFF, also contributes its share to the process, so that when the antiseptic precautions which should be taken by every surgeon to prevent gross septic material from making its way into the wound, or from obtaining any footing there, are taken in the case of any patient enjoying moderately good health, to begin with, there should be a fair prospect of healing without the intervention of suppuration of any kind. Sir JOSEPH LISTER'S exposition of his subject is so clear, and his experiments are so definite and well thought out, as to make his position almost unassailable.

THE controversy which has recently been going on between Professor MAHAFFY of Trinity College, Dublin, and Lord Justice BOWEN on the advantages and disadvantages attending the great extension of popular education now in progress in this and other countries raises not only many incidental questions of great interest, but one fundamental problem of the highest importance—viz., how far the popularisation of education loses in depth what it gains in diffusion, how far, in other words, it sacrifices thoroughness to superficial dissemination. Must the race of scholars decay in an age when everyone is acquiring a smattering of education? When everyone reads somehow and something, are none to read wisely and exhaustively? Is there any fair prospect that the universal spread of education—if that be possible—will banish poverty and reduce crime to a minimum? Is knowledge the talisman to cure the ills of society and transform human life?

These are large problems, not to be lightly dogmatised upon, and we shall confine ourselves to one phase of the controversy—viz., whether there is any incompatibility between the spread of education to all classes and the maintenance of the standards of education. Few questions are more important and no one will deny the opportuneness of the subject at the present time. We are in the full tide of an immense diffusion of popular education, be the results what they may. The operation of the English Education Act of 1871, the foundation of the Royal University and of the Intermediate System in Ireland, the vast growth of newspapers and periodical literature, the notable cheapening of books—all these and other causes have contributed to this result. It has been usual to congratulate ourselves upon this state of things as if it were pure gain, so that the somewhat Cassandra-like monitions of so experienced an authority as Professor MAHAFFY will be startling to many. His testimony is that in the area of his observation the diffusion and popularisation of education have gone hand in hand with a palpable lowering of its standards. "As regards the pupils of the higher schools in Ireland," he writes in the *Nineteenth Century*, "it is not only my conviction, but that of many of my colleagues, that their average scholarship was higher twenty years ago than it is now. As regards classics, we are agreed that not only is the writing of verses—an excellent test of elegance—becoming almost extinct, but that prose writing is far more slovenly and inaccurate. In mathematics our new difficulty is to keep alive even an interest in its higher branches in this our famous mathematical university." In reply to the objection that classics and mathematics are now less exhaustively studied than in a former generation because so much time is consumed on what are virtually new subjects, such as French, German and Music, Professor MAHAFFY thinks the new knowledge so superficial as to invalidate the apology. Of schoolboys examined by him he says that the vast majority "had learned to translate a text-book which they could not read and to repeat grammatical rules which they could not apply. In music they had learned barren theory without any reference to practice."

We do not dispute Professor MAHAFFY'S facts, but we do demur to the interpretation put upon them. We believe that the spread of education has been on the whole a great gain, but that the gain has not been unmixed. We think that if a sufficiently wide view of the subject be taken, it will become apparent that education is undergoing a radical alteration in its purpose, methods and results, and that we are at present suffering from some of the inevitable inconveniences of a transition period. Until recently education in any comprehensive sense of the term, was the privilege of the few. It was practically confined to those who had either wealth and leisure or who were prepared to face a prolonged struggle with poverty and obscurity. It had its favourite seats in secluded university towns and it shunned, rather than courted, contact with the streams of commerce and industry. It became the badge of a small and exclusive caste. The

great mass of the people were either practically outside the range of its benefits, or at best received these only at second-hand. All this is now being steadily altered. Universal compulsory education has widened and broadened the intellectual horizon of all classes, it has created new tastes and ambitions it has fostered talents hitherto undeveloped. The cost of university life has been reduced; universities are more and more springing up in the large centres of industry; examination boards have been established to test the progress made by those whom the *res angusta domi* compels to study in private; university extension lectures aim at diffusing some smattering at least of university training amongst large areas of the community—in a word, education is being popularised. Pessimists sum up for us rather dolefully the result of all these efforts. They tell us that the net result has been that everybody, from the servant girl and the shop assistant to the peeress and the prince, now reads newspapers and light fiction, and that profound and accurate scholarship is disappearing from our midst. We decline to believe it. It is no doubt disappointing to find that at most of our public libraries the proportion of novels read to other books is as high as 80 and 90 per cent., but there is nothing surprising in the fact that in an age when everybody reads the general rush should be at first towards the lightest and least fatiguing form of literature. A large proportion of the readers exhaust all their available energy in their other pursuits and turn to books and periodicals simply for distraction and amusement. This is to a certain extent inevitable; still we may fairly hope that a more matured taste will tend to grow up, and that this growth will be materially helped by any measures to enlarge the—at present—very scanty leisure of the artisan classes. But if, admittedly, the great majority of readers nowadays confine themselves to the lightest forms of literature we are not prepared to grant, without further evidence, that the number of real scholars is declining. They never were, perhaps never will be, a numerous class; but if we take one test—and that perhaps the best—viz., the output of scholarly books, we think there is no reason for a despairing view of the prospects of education. Learning is no longer sunk in a well here and there. It is being universally diffused, in a perhaps shallow, but still beneficent stream. Those who look only at the shallowness of the modern stream and at the depth of the ancient wells are filled with forebodings. But we are confident that the future will prove these forebodings to have been due to a limited view of a large and complicated subject.

WE publish this week a clinical lecture on Symphysiotomy by Professor PINARD, in which he records thirteen cases of this operation performed either by himself or by his assistants in the Clinique Baudelocque during the year 1892. It is only necessary to mention the results obtained in this series of cases for it to be at once evident that the lecture is one of great interest and importance, especially to those concerned in the practice of operative midwifery. All the thirteen patients who underwent the operation recovered completely, and ten of the children were born alive, and were known to be thriving at the time when the lecture was given. In no case was the mother's power of walking impaired by the operation. Such a record is one of remarkable success, of which Professor PINARD may be justly proud, and it can hardly fail to have an important influence on the obstetric art in other countries. If we refer to the details of the cases the evidence is for the most part as complete as could be wished that the result in each case was really due to the operation, and could not have been obtained by any other means, with equal safety to the mother. Thus in Case 2, though exact measurements are not given, we find that the pelvis was flattened, as the sacral promontory was accessible; two attempts were made to deliver by the forceps under chloroform without success; symphysiotomy was then performed, and a living child was easily extracted by the forceps. The child weighed over 10 lb. and was twenty inches and a half in length. In several other cases previous confinements had only been terminated by basiotripsy. Subsequently, however, by means of symphysiotomy these patients were delivered of living children. Yet symphysiotomy is not a new operation—it is indeed an older operation than ovariotomy. At all events, the first symphysiotomy was performed by SIGAULT and LEROY in 1777, whereas the first ovariotomy is generally considered to have been MCDOWELL'S case in 1809. Some points of similarity may be observed in the history of symphysiotomy and ovariotomy respectively. Thus both operations had become almost obsolete during the first half of the present century. As regards symphysiotomy, HARRIS'S table records seventy cases from 1777 down to 1858, with a maternal mortality of 37 per cent. and a fœtal mortality of 67 per cent. It is worth noticing that the last ten of these seventy cases were performed between 1836 and 1858 and show a maternal and a fœtal mortality of 50 per cent. A table of fifty cases, from 1866 to 1880, chiefly by Professors MORISANI and NOVI of Naples, shows a maternal mortality reduced to 20 per cent. and a fœtal mortality of 18 per cent. If we look at the results of symphysiotomy since 1880 it seems to be the fact that on the Continent the operation has attained to the assured position that has long since been everywhere accorded to ovariotomy, and that it involves little or no risk to the mother. It cannot now be disputed that the space available for the passage of the fœtus is serviceably increased by symphysiotomy performed on a woman *in labour*. Those who formerly maintained the contrary were misled by post-mortem observations made on the bodies of those who had not died during pregnancy or labour; or if on the bodies of those who had died in childbirth, the observations were made too long after death; for even two or three days have been found to make a remarkable difference in this respect. When the pubic bones are separated to the extent of six centimetres it has been shown that lines drawn from the sacral promontory to the ends of these bones are increased about fifteen millimetres. The gap so formed allows a projection of the fœtal head beyond the bony ring of the pelvis. The gain thus obtained has been estimated as equivalent to an additional seven millimetres, making a total increase of twenty-two millimetres, or rather more than three-quarters of an inch. The transverse and oblique diameters of the pelvis are also necessarily increased. Considerations based on these figures, and on the measurements of the fœtal head at term, go to show that symphysiotomy is available at term in a simple flat pelvis

having a conjugata vera of about 2¾ in., or perhaps a trifle less (in the table of fifty cases already referred to there are two cases where the conjugata vera is given as 2¾ in.; in both the result was satisfactory in the case of both mother and child). It seems clear, however, that some at least of the fatality formerly attending the operation must be ascribed to its having been performed in unsuitable cases—cases where there was extreme contraction. Thus in SIGAULT'S last operation (1778), which was fatal to both mother and child, the conjugate only measured about twenty-three lines, and other similar instances might be cited. In this case the operation seems to have been undertaken with the deliberate object of substituting symphysiotomy for Cæsarean section, even in the highest degrees of pelvic contraction. That such a position is untenable is shown both by the excessive mortality attending such cases as well as by the researches of recent times that have been undertaken with a view to placing the operation on a rational rather than on an empirical basis, It would be premature, especially on the part of any English writer, to attempt to define exactly within what limits symphysiotomy may be expected to prove useful. One thing, however, is clear—namely, that the operation is preëminently suitable for those cases where the pelvis is just too small to allow of the delivery of a living child, and for those where the induction of premature labour with difficulty succeeds in bringing about the birth of a living child, even with the aid of instrumental assistance. The mortality amongst such of these children as are born alive is extremely high, as every obstetrician knows. It seems precisely in this group of cases that we may look for good results from modern symphysiotomy. It is a remarkable thing that so far as we know the operation has only once been performed in England, and that unsuccessfully, more than 110 years ago. The case was one where the pelvis was deformed in a high degree by osteomalacia, and the conjugata vera was only two and a quarter inches. The woman had been left a long time in labour, and the fœtus was putrid. Such a degree of contraction was of course too great for the case to be a proper one for symphysiotomy; moreover the fact of the patient having been a long time in labour and the fœtus being putrid made the case a very unsuitable one to serve as a test of the value of a new operation. Probably modern successes have been chiefly due to two things—the avoidance of the operation in cases of extreme contraction, and a strict observance of antiseptic methods. Unless English obstetricians are unable to obtain results similar to those reported from Italy and France, which we are unwilling to believe, they will, except in the rarest instances, be spared the painful alternative of either performing craniotomy on a living child, or of subjecting the mother to the risk of the Cæsarean section—an operation that, when all has been said, still remains one of considerable danger.

DR. HUGH JAMIESON, Resident Surgeon of the British Hospital, Monte Video, has had the degree of Doctor of Medicine and Surgery conferred upon him by the Monte Video Faculty of Medicine. This proceeding is unique, the usual practice in that territory being to recognise the diplomas which the medical man already bears.

Annotations.

"Ne quid nimis."

THE HUNTERIAN ORATION.

SELDOM indeed has an audience more representative or distinguished met within the walls of the Royal College of Surgeons than that which assembled on Tuesday last—the centenary of the death of the famous investigator, biologist and surgeon, John Hunter—to listen to the Hunterian Oration delivered by Mr. Thomas Bryant, the President of the College. The audience was honoured by the presence of His Royal Highness the Prince of Wales and of his son, His Royal Highness the Duke of York. It is about fifteen years since the Prince of Wales—who on that occasion was accompanied by Mr. Gladstone—visited the Royal College of Surgeons to hear Sir James Paget deliver the Hunterian Oration, and the alumni of the College have good reason to re-echo the President's expression of their great appreciation of the honour which has been conferred upon it by this visit of their Royal Highnesses. The surroundings were very striking. The orator, in his robes of office, stood at the table, on which was placed a small timepiece which had belonged to John Hunter, which Mr. Bryant assured his audience "goes well and keeps good time yet." Over his head hung the famous picture by Sir Joshua Reynolds of the man to honour whose memory they had that day assembled. The portrait is well known and somewhat dimmed in colour; but, as the rays of the setting winter sun glanced on the picture, the thoughtful, upturned eyes and general expression of quiet yet acute observation, seemed to cause the picture to glow with memories and associations. These appeared to become even more real as the orator detailed in his masterly oration the facts of Hunter's industry as a worker; of his transcendent capacity for taking trouble; of his humility; of his career as a seeker after truth; and of his work as surgeon. As a literary effort it is difficult to speak of the oration in terms of praise too high for such a masterpiece of industry and research and of arrangement, which gave new life to old facts and new interest to old theories. We feel assured that no one left the College of Surgeons on Tuesday without a stimulus to fresh industry, or, to use the orator's own words, "without a powerful incentive to continued good work." The portion of the oration dealing with the treatment of diseases by stimulants was peculiarly interesting, as were the observations on cancer and the quotation concerning Hunter's radical method of preventing hydrophobia. Mr. Bryant concluded with the remark that the seeds of science which Hunter had sown possessed a germinal principle of life which guaranteed vitality. Their Royal Highnesses, before leaving, were conducted through the museum, accompanied by the President and Professor Stewart, the conservator of the museum.

THE SUPERINTENDENT OF STATISTICS.

THE announcement of Dr. Ogle's resignation of the post which he occupies in the department of the Registrar of Births and Deaths points to a vacancy in the immediate future which has great interest for the medical profession. Dr. Farr gave to the post in question a distinctively medical character, and the reports which he issued as a medical statistician had a wide influence in educating the public to appreciate the value and significance of vital statistics in their relation to public health. Dr. Ogle has not failed to maintain the standard of merit thus set, and the introductory chapters to the Registrar-General's annual reports are known to have been largely drawn up by him. The selection of his successor is, under these circumstances, a matter of great importance both to the public and to the medical profession. Fortunately candidates are not wanting

who would do honour to the post. One is Dr. Arthur Whitelegge, who now occupies the position of medical officer of health to the West Riding of Yorkshire. He is also examiner in Public Health to the University of London, Milroy Lecturer to the Royal College of Physicians and author of a standard work on Hygiene, and most of his well-known contributions to medical literature, including a paper on Measles which he recently read before the Epidemiological Society, show that he has a complete grasp of the value and bearing of statistics in relation to medicine. Dr. John Tatham, the well-known medical officer of health for Manchester, is also a candidate for the post. As an administrator Dr. Tatham has done work beyond his fellows, and no one can read the excellent series of reports which he has issued on the health both of Salford and of Manchester without seeing that he has made vital statistics a constant and careful study. His recent Life Table for Manchester is also a piece of work of distinct statistical merit. Dr. Newsholme, medical officer of health for Brighton, is also a candidate. His career at the London University was a distinguished one, and he is the author of a work on Vital Statistics which has considerable merits and which is much used by medical officers of health. Although the General Register Office is regarded as a department working in connexion with the Local Government Board, it is somewhat curious that the office of Superintendent of Statistics which is now in question is not in the gift of the President of that Board, but of the First Lord of the Treasury. It is, however, to be hoped that in filling the vacancy it will be borne in mind that the relationship existing between it and the public health service of the country is a close and intimate one, and that it is important that this relationship should be maintained and even rendered more intimate.

INSPECTION OF PREMISES OCCUPIED BY OUT-WORKERS IN CERTAIN TRADES.

BY the Factory and Workshop Act, 1891, it was enacted that the sanitary regulations affecting workshops should be placed under the direct control of the Sanitary Authority instead of that of the inspector of factories. The Act of 1891 was framed after the publication of the report of the Sweating Commission, and was intended to correct some of the grave abuses which the inquiry brought to light. By the Act of 1878 it was held that a place solely used as a dwelling shall not be deemed to form part of a workshop. It was precisely in the dwellings of the outworkers, however, that the worst evils of sweating existed. By Section 31 of the new Act it is provided that, with the exception of rooms used solely for the purpose of sleeping, a dwelling shall be deemed to form part of a workshop. It is evident, therefore, that by making the local authority responsible for the hygiene of workshops in their district powerful means have been placed in their hands for the improvement of the condition of the outworkers, although it is to be regretted that exception should have been made in the case of sleeping-rooms for the purposes of the Act. On Nov. 19th, 1892, a circular letter was addressed by the Local Government Board to the various sanitary authorities, and we have been kindly favoured by Dr. F. J. Waldo, the medical officer of health for the parish of St. George the Martyr, Southwark, with a copy of the report which he submitted to the vestry at the request of the Public Health Committee in reference to this letter. We are informed that the order requires the occupier of every factory and workshop, and every contractor employed by any such occupier in any of the following businesses, to keep lists of outworkers according to a prescribed form—viz., (1) the manufacture of articles of wearing apparel, (2) cabinet and furniture making and upholstery work, (3) the manufacture of electro-plate, and (4) the manufacture of files. These lists are to be open to the inspection of the inspector of factories or any officer of the sanitary authority. The medical officer of health and sanitary inspectors are particularly requested to examine these lists from time to time in order to familiarise themselves with places in which outworkers are employed and thus the more readily to correct existing evils. As Dr. Waldo very rightly points out, power is thus conferred upon the sanitary officials of penetrating into the dens inhabited by some of the outworkers and of improving their hygienic surroundings. It would have been better, however, had no restriction been imposed by the Act in the definition of "workshop," so that every portion of the house might have been open to the inspection of the medical officer of health and his staff. By the recent Order further facilities will be placed in the hands of sanitary authorities for checking the spread of infectious disease, now but too frequently conveyed by wearing apparel and upholstery. It would appear that occupiers of the scheduled businesses have already evinced their readiness to coöperate with the Public Health authority, and although not required to forward lists of outworkers to the sanitary authority have all expressed to Dr. Waldo their willingness to do so. It is clear, however, that although the factory may be situated in a certain district all the hands need not reside in that district. Indeed, many of them may live far afield. Consequently, unless some system of coöperation be instituted amongst sanitary authorities only a proportion of outworkers will be brought under supervision. Dr. Waldo suggests two methods by which the difficulty may be overcome: (1) "The coöperation—if possible in so unwieldy a city as administrative London—between the various sanitary authorities, so that the officer appointed in each district shall inspect the lists of workers in that district, and extract from those lists, and furnish to other metropolitan districts, a copy of all the necessary particulars regarding outworkers working outside his district;" or (2) the more simple and efficacious plan—viz., "the organisation under the Home Secretary of a staff of inspectors with a chief, whose duty it will be to inspect all the lists of outworkers and to exact from each metropolitan sanitary authority the requisite detail, and forward the same to the various medical officers of health." We are informed that the latter method has been adopted by the Home Secretary, so that we may hope that the organised system of inspection to which outworkers in the scheduled businesses will be subjected in the future may result in healthier homes and less over-pressure.

THE NURSING OF CHOLERA PATIENTS.

A CIRCULAR has been issued by the Special Committee of the Royal British Nurses' Association calling the attention of the various nursing associations throughout the country to the fact that in September last (as announced in THE LANCET of Aug. 27th) a roll for nurses who would hold themselves prepared to attend in cases of cholera was opened by the Association. The action of that body in this regard was due to a suggestion made by the Princess Christian, and the appeal which her Royal Highness addressed to the nurses of Great Britain at the time elicited a prompt and favourable response. The Special Committee is intended to act as a central means of communication to which the constituted authorities can apply in times of emergency with some certainty of securing ready assistance, though it is not to be allowed to interfere with the financial arrangements or independence of any of the existing nursing institutions or agencies. Accompanying the circular are papers relating to the employment of nurses and suggestions for their guidance which have received the approval of competent authorities. The Special Committee are, we are informed, desirous of ascertaining the number of nurses whose services may be relied upon in the event of cholera prevailing in this country in the ensuing summer. In connexion with this subject it may

be mentioned that the second lecture of the session of the Royal British Nurses' Association will be held to-day (Friday) at 8 P.M., when Miss Annesley Kenealey will lecture on "Cholera Nursing."

AN INTERESTING RELIC.

AFTER the delivery of the Hunterian Oration by Mr. Thomas Bryant, the President of the Royal College of Surgeons, Dr. Samuel Lee of St. Leonards-on-Sea presented to the College the hair of the distinguished physician and physiologist, Dr. William Hunter, F.R.S., brother of the celebrated John Hunter, which was left to the late Dr. Robert Lee by Mr. William Hunter Baillie in 1861.

THE DANGER OF WOODEN HOSPITALS.

AT a moment when so many sanitary authorities are hurriedly trying to make amends for past failure to provide their districts with isolation hospitals by running up temporary buildings there comes a serious warning from Kidderminster and from the other side of the Atlantic as to wooden buildings. At the County Lunatic Asylum, Dover, New Hampshire, a terrible fire broke out and no less than twenty-four lives were sacrificed. At Kidderminster the same catastrophe occurred, but happily the actual loss of life was limited to one patient, although the building was utterly destroyed. The most common practice at present in operation as regards temporary hospitals in this country is to build them of corrugated iron; but these buildings are as a rule lined throughout—floor, walls and ceiling—with wood, and hence they present a similar, though doubtless a much modified, source of danger. The warnings received will, we trust, conduce to a more general erection by sanitary authorities of properly constructed permanent buildings.

THE SALE OF PROPRIETARY MEDICINES CONTAINING POISONS.

SOME time since the Pharmaceutical Society was congratulated upon having obtained an important decision respecting the sale of chlorodyne. Before a county court judge the Society was awarded a favourable decision in an action for penalties under the Pharmacy Act, 1868, the defendants being grocers, not chemists (would not the word "druggists" be more accurate in this respect?), who had sold chlorodyne. On appeal, before Mr. Justice Lawrance and Mr. Justice Collins, the Court upheld the decision of the county court judge, that the appellants not being chemists and selling chlorodyne were liable to penalties. The arguments used by counsel and the terms in which the judgment was delivered are alike of interest, even though it may be feared that a final solution has not yet been reached, as the Court gave leave to appeal. The counsel for the defendants argued that, although chlorodyne was said to contain two grains of morphine to the fluid ounce, it was not a poison in the ordinary sense of the word; but if it was, it came within the exemption of the section relating to "patent medicines." On behalf of the Society, Mr. Poland urged that the Legislature had divided poisons into two classes—first, a class of more active and deadly poisons, which could only be sold by the chemist to someone known to him or introduced by someone who is known; and a second class, again only to be sold by chemists if the vessels containing them were labelled "poison." Inasmuch as chlorodyne contained a "preparation of opium or of poppies," he considered that it came within the second class and he denied that it was a patent medicine. Mr. Justice Lawrance, in giving his decision, said that he felt that the simple question to be decided was whether a person, not a chemist, could sell a proprietary medicine containing a poison, and, after some doubt, he had come to the conclusion that such a person could not do so. The idea of exemption as a patent medicine was easily swept aside, and, for the present at least, it was ruled that if a medicine contained a poison mentioned in the schedule, that medicine ought to be labeled. As notice of appeal has been given, any detailed criticism of the merits of the case must be reserved. It may be sufficient to remind our readers of the frequency of fatalities from overdoses of chlorodyne, taken, presumably, in ignorance, and of the many occasions upon which this action of the Pharmaceutical Society has been urged by strong representations from coroners' juries. Meanwhile, whatever the final stage may be, it is impossible not to feel that this inquiry and this ventilation of the possible dangers of chlorodyne may work for good in limiting the reckless employment of this compound, whether it be a "patent medicine" or not.

AN IRREGULAR DEATH CERTIFICATE.

MR. A. BRAXTON HICKS recently held an inquiry into the death of Richard Killick, aged sixty, a master shoemaker, who had been attended till Jan. 24th by Mr. Freeman, of 203, Blackfriars-road, his club doctor. Thereafter he was attended by Mr. Freeman's assistant, who had been known to the deceased's family as "Dr." Park, but who was unqualified. The certificate was in the handwriting of "Dr." Park, but was signed by Mr. Freeman, and stated that he had seen the deceased on the 29th, that is five days after his last visit and two before the patient's death. He explained this at the inquest on the ground that when he signed the certificate he thought he had seen the deceased on the 29th. The jury condemned the action of the medical man.

THE MULTIPLICATION OF SPECIAL SOCIETIES.

WE are threatened with another deluge—a deluge of special societies. One by one they multiply, and no man can say where they will stop. There is, we believe, already a Laryngological and Rhinological Society, though we have felt compelled to refuse the recognition of its separate existence; and we are now threatened with another—the Laryngological Society of London. The menace is not the less serious, but much the more so, because the first list of names, beginning with that of Sir George Johnson, includes a large number of others whose authority in medicine and surgery gene rally we all cheerfully recognise. We really feel that this is an evil to be repressed. If we are to have a Laryngological Society, why not a Pharyngological Society and a Rectal Society, or, to be still more particular, one society for fistula and another for cancer of the rectum. The gentlemen whose names are in this list and who give it weight are men whose reputation in medicine or surgery is broad and general. Take Sir George Johnson as an illustration. It has long been known that he, though having a highly specialised knowledge of momentous organs, has taken special interest in diseases of the throat, in cholera, in diphtheria, and has shown himself to be familiar with disease in every department of medicine. We are sure that such a physician of the whole body will be proof against any tendency to take a narrow or specialistic view of any disease of one of its parts—a tendency which has brought great discredit on the profession and threatens to bring much more. Why should Sir George Johnson give his high sanction to a special society for the consideration of diseases of the larynx? Is there any conceivable reason for creating a society for such exclusive work that might not be urged with tenfold force in favour of the creation of a Nephrological Society? Life and time are very limited quantities. Neither students nor medical men have the leisure to go to an unlimited number of societies or hospitals. If every particle of mucous or serous membrane is to have its own special society and hospital it can only be at the expense of the general medical societies and the great general hospitals. This multiplication of societies is an evil as is that of hospitals.

It is to be counteracted by bringing special diseases to notice in the general societies and in the general hospitals, where they may be seen by students and general practitioners, who in their turn will be induced to cultivate the use of special methods and instruments. We have no faith in the specialism that is not, like Sir George Johnson's, evolved out of general experience and knowledge of the body. Such evolution is retarded rather than helped by special and close societies. We have abstained from using arguments against special societies and hospitals originating in a lower set of motives, as having no application to the gentlemen whose names are before us and who seem ready to become responsible for the creation of another superfluous society. We prefer to base our objections on more general and higher grounds, and appeal to these very gentlemen to help us in averting the deluge.

THE LONDON WATER-SUPPLY.

THE Royal Commission of Metropolitan Water-supply resumed its sittings on Monday last and the hearing of evidence was concluded on Wednesday. Mr. J. H. Shoveller of the Registrar-General's office gave particulars as to the extent of the existing supply, and he dealt also with the probable growth of population. He was followed by Mr. W. J. Dibdin, chemist to the London County Council, and other expert analysts, amongst whom was Dr. Frankland, who gave evidence in regard to the quality of the present supply. Dr. Frankland suggested in certain cases a system of double filtration. His verdict was that the quality of London water, on the whole, was very good and occasionally—on rare occasions—very bad. In the latter case it was because of the admission of flood water into the reservoirs. Therefore, on no pretext whatever, as we have urged all along, should the filtering process be allowed to become defective in the least degree. It might happen—who can tell?—that at the very time when the beds were being repaired, or were found to be unsatisfactory in some particular, contaminated water was passing through to the mains. The community should never be exposed to such a risk. At the last sitting of the Committee, on Wednesday, Mr. A. R. Binney and Major-General de Courcy Scott, R.E., Water Examiner under the Metropolitan Water Act of 1871, also gave evidence.

TWO CASES OF CÆSAREAN SECTION.

THIS somewhat unusual operation has recently been performed at two of our large London hospitals, St. Thomas's Hospital and the London Hospital, by the obstetric physicians attached to them. We consider that the operators exhibited a right and just regard for the instruction of the students of the schools in which they are teachers by removing the patients to the hospitals named rather than in operating at the York-road Lying-in Hospital, to which they are also attached, and at which the patients first applied for aid. Amongst the large number of students who were present there were possibly some who may be called upon to act in similar cases, and it is not improbable that the details of the operations as witnessed respectively on the 8th and 9th inst. will be remembered and will give the necessary confidence and knowledge to enable them to save lives. On Wednesday, the 8th inst., Dr. Herman operated at the London Hospital. The case was one of extreme rickety deformity. Labour had come on at the end of the eighth month of pregnancy and the liquor amnii had escaped. The uterus was opened while within the abdomen and pressed out of the wound after the child had been extracted. The uterine wound was closed with eight interrupted silk sutures, passing through the muscle but not through the decidua, and a fine continuous catgut suture of the peritoneum. The child was living, and at the date of our last report (Feb. 14th) both mother and child were doing well in every respect. In order to sterilise the patient both Fallopian tubes were tied. A loop of one was tied and cut off; the outer half of the other was ligatured and removed. The second operation was performed at St. Thomas's Hospital by Dr. Cullingworth on Feb. 9th on a patient aged thirty-one, suffering from rickety pelvis, with an estimated conjugate diameter of 2¾ inches, and pregnant for the seventh time. Three of her previous pregnancies had terminated in miscarriage and one in labour at term, when craniotomy had to be performed. On two occasions labour had been induced at seven months; the first time the child lived a few hours, the second time the patient was in the General Lying-in Hospital in York-road, where delivery was effected by version, followed by perforation of the after-coming head. On again becoming pregnant she was advised to go to full time and be delivered by Cæsarean section. To this she eventually consented. The operation was performed a few days before labour was expected. Labour had not commenced. The uterus was opened *in situ* and the child extracted before the liquor amnii had been allowed to escape. The child, a well-formed male, 7¾ lb. in weight, cried vigorously as soon as it was born. The placenta and membranes were quickly removed. There was a little delay owing to the uterus not contracting well; but the amount of blood lost was not very great. No elastic ligature was used. The outer inch of both Fallopian tubes was removed in Dr. Cullingworth's case, as this had been proved to be necessary by a case which occurred four weeks ago at Guy's Hospital, and which showed that mere ligature is insufficient when they are simply ligatured in continuity. The uterine wound was secured by six deep and about as many half-deep silk sutures. The operation lasted fifty-five minutes. Except that the patient vomited for a few hours during the latter part of the second day her recovery has been as satisfactory as if after a normal confinement, the highest temperature having been 99·4°.

THE PHENYL-HYDRAZINE TEST AND SUGAR IN NORMAL URINE.

IN the course of a paper read on Tuesday evening at a meeting of the Royal Medical and Chirurgical Society on the disputed question as to whether sugar is ever present in normal human urine, Mr. G. Stillingfleet Johnson, F.C.S., gave a demonstration of the above test for sugar, by which its presence in quantities of much less than a tenth of a grain per ounce can be shown with certainty. The process is as follows: The urine is completely precipitated with lead acetate and filtered. The filtrate is rendered alkaline with potash, and a solution of phenyl-hydrazine is added. The mixture is well shaken and boiled. An orange colour is developed, which is followed by an orange precipitate, when excess of acetic acid is added if sugar be present. The clinical value of the test is increased by its not being affected by excess of urates or kreatinin, which occasionally lead to error in inexperienced hands when testing human urine for sugar with either cupric salts or picric acid in boiling alkaline solutions. Dr. Curnow stated that he had used the phenyl-hydrazine test with complete satisfaction for the past two or three months. The test was discovered by Fischer and made better known by C. Schwartz. It precipitates aldehydes and ketones, glucose belonging to the former class. It is almost impossible to imagine that any other aldehyde or any ketone but glucose can become a constituent of normal urine, and hence the peculiar value of the reagent. There are other carbo-hydrates if not glucose among the extractives in normal human urine, and the question as to whether glucose is amongst them in a very minute proportion seems to rest on the relative value of the benzoyl-chloride test advocated by Dr. Hunter and the phenyl-hydrazine test used by Mr. Stillingfleet Johnson.

If the entire reducing action of the normal urine can be accounted for by the uric acid and kreatinin which it contains, as is so positively stated by Mr. Johnson, it is clear that there is no room for believing that glucose or any other carbo-hydrate with a "reducing" action can be present in normal urine. Phenyl-hydrazine is a derivative from phenol.

CHOLERA SURVEY.

THE general visitation of port sanitary districts in anticipation of the recrudescence of cholera during the present year is now in full working order, and the medical inspectors of the Local Government Board are actively engaged in the duties on several portions of the coast. Thus we hear of Mr. T. W. Thompson in Northumberland ports, of Dr. Copeman at Great Yarmouth, of Dr. Theodore Thomson at Cowes and Portsmouth and of Dr. Bulstrode at Poole and Falmouth. Inspection of riparian districts will follow that in the port districts, and, as in 1884–86, a number of urban and rural inland districts will need special visits with view to such action as will tend to free them from risk in case of the importation of cholera.

THE NEED OF MEDICAL EVIDENCE IN CASES OF ALLEGED INSANITY.

OUR attention was recently directed to a curious anomaly in certain legal proceedings at the Cape, an account of which we published in a letter from Dr. Cartwright Reed in our issue of Jan. 21st, at page 167. The writer had up to the occurrence of the case which he records been under the impression that "no person could be pronounced of 'unsound mind' without the support of medical testimony." He doubts whether any British jury would venture to return such a verdict unless it was supported by expert evidence. It cannot but be regarded as a most unsatisfactory proceeding that any person should be adjudged to be insane without the support of medical testimony. That a British jury has power, even in a criminal case, to return a verdict of "Guilty of the act, but insane at the time it was committed," without medical evidence is shown in the case of the Rev. Henry J. Dodwell, who was tried before the late Baron Huddleston in March, 1878, for "assault" after firing a pistol at the then Master of the Rolls, Sir George Jessel. Mr. Dodwell was ordered to be detained during Her Majesty's pleasure as a criminal lunatic. We are strongly of opinion that cases where the existence of insanity is alleged ought never to be decided without medical evidence.

THE DIFFUSION OF SMALL-POX.

THE diffusion of small-pox still continues and there seems to be no diminution in the number of places attacked; but, on the other hand, no new outbreaks of any considerable dimensions are reported, and in most of the towns in which a rapid increase seemed imminent there has been a distinct reduction in the number of fresh attacks. It is as yet too early to speak with any confidence as to the prospects for this spring, but it is quite possible that next winter and spring may be for us the most serious point of the present prevalence, and not the next few months. If once we can tide over the month of May our anxiety as to an epidemic on a wide scale for this year may be at an end. There is, however, still time for a wide prevalence during the three months which have yet to elapse. Amongst the places as to which fresh news comes to hand we note the following: Aston Manor, Barnard Castle, Bedford, Birmingham, Blackburn, Bradford, Bromyard, Bury, Carlisle, Chadderton, Cogan, Crewe, Derby, Devonport, Dover, Exeter, Enfield, Failsworth, Guildford, Halifax, Huddersfield, Jarrow, Ledbury, Leeds, Leicester (where the new attacks last week were only six in number), Liverpool, Liversedge, Macclesfield, Manchester, Middlesbrough, Newcastle-on-Tyne, Nottingham, Oldham (where fifteen fresh attacks have occurred during the past week), Preston, Rotherham, Runcorn, St. Helen's, Salford, Sheffield, South Shields, Stalybridge, Southampton, South Stoneham, Stockport, Spennymoor, Shrewsbury, Sunderland, Swansea, Wakefield, Warrington, Warwick, Wigan, Widnes, Wolverhampton, Yeadon and York. In the metropolis the disease continues slowly to extend. There were 109 cases of small-pox on board the hospital ships on the 13th inst., in addition to a few cases at Highgate.

MR. GLADSTONE'S SPEECH.

WE must leave to politicians the appraisement of Mr. Gladstone's speech on Monday, regarded as a piece of statesmanship, but regarded from a medical or physiological point of view there can be no difference of opinion. The performance must be regarded and must remain not only as historical, but probably as unique in the history of eloquence and of States. Those who were privileged to be amongst the audience will never forget the scene or the speaker. In the crowded chamber, filled with all that was distinguished and influential in British society, his voice was heard for the first hour of the speech with perfect ease; and even when its physical force began to abate it was still felt as an influence altogether exquisite and refined. No difference of opinion could avail to save the listener from the spell of a voice, always seconded by the choicest amenity of expression, which it may safely be said has no rival in contemporaneous Parliaments. The wonder of all this is doubled by the fact that the speaker is in his eighty-fourth year. Though there was a perceptible falling off in the force and volume of voice as the second hour was reached, the animation of the orator was all intact. His eye, and especially his right hand brought into emphatic contact with the table from time to time, testified to the vehemence of his thought and feeling, and when occasion required it, as for the delivery of a passage of special importance or the final peroration, a reserve of voice was again and again drawn upon, and the enthusiasm of the mighty audience swelled the effect of the eloquence by which it was itself swayed. The most marvellous part of all was to see the orator after he had resumed his seat looking as serene as if nothing unusual had been done, and to learn that he went home to dine quietly with his family and to sleep with as little disturbance as if he had only been engaged in the most ordinary occupation. The record of eloquence is beaten by our octogenarian Premier, and, apart from any consideration of politics, with which we are not concerned, we are all very proud of him.

CHOLERA AND ALIEN IMMIGRATION.

THE question of alien immigration has been brought prominently before the country by means of Mr. James Lowther's amendment on the Address, but it is clear that the Government are not prepared to put a stop to it or even to that portion of it which can be properly styled "destitute." Some stimulus in the direction aimed at by Mr. Lowther has evidently been brought about by the attitude adopted by the Local Government Board in their amended Cholera Order; but it should be made clear that this Order only professes to deal with a public health question and not with one that has to do with foreign labour or imported pauperism. The immigration last autumn of expelled Russian Jews into this country *viâ* Hamburg constituted a danger to public health, not because they were poor and alien, but because they were unable to give that guarantee as to some definite address to which they were going and where they could be kept under supervision by the local health officer during the incubation period of cholera. Hence when passengers from infected ports are "filthy or otherwise unwholesome," or when they are unable to satisfy the port medical officer of health as to their names, places of

destination and addresses at such places, their landing at our ports can and should be refused. In some ports action as to this has been suspended; in the Port of London it has not been felt safe to forego the requirements of the Order during the winter months; and at all ports it may soon become necessary to put the terms of the Order into operation again as regards the classes referred to. But such action has no reference to anything other than the protection of the public health from cholera. If alien immigration comes to be dealt with as a whole and for other purposes, it will not be on medical grounds such as those to which the terms of the Cholera Order are limited.

FOREIGN UNIVERSITY INTELLIGENCE.

Chicago (College of Physicians and Surgeons).—Dr. Henry T. Byford has been appointed to the chair of Gynæcology in succession to the late Dr. Reeves Jackson.

Marseilles.—Dr. Magail, Professor of Clinical Midwifery, has retired and Dr. A. E. Queirel has been appointed to succeed him.

Palermo.—Dr. Tansini of Modena, has been appointed Professor of Clinical Surgery.

Paris.—Dr. Brouardel, Professor of Forensic Medicine, has been appointed Dean of the Medical Faculty for a term of three years.

Philadelphia (Jefferson College).—Dr. Schweinitz has been appointed Professor of Ophthalmology.

St. Petersburg (Military Medical Academy).—Drs. G. U. Yavein, S. S. Botkin and M. M. Volkoff have been recognised as *privat-docenten* in Clinical Medicine and Dr. B. V. Tomashevski as *privat-docent* in Clinical Neurology.

Tomsk.—Dr. A. T. Sudakoff, Professor of Hygiene and Medical Statistics, has been appointed Rector of the University for a term of four years in succession to Dr. Veliki, Professor of Physiology.

Turin.—Dr. Dionisio has been recognised as *privat-docent* in Laryngology and Rhinology.

THE seventh session of the French Congress of Surgery will be held in Paris at the Faculté de Médecine on Monday, April 3rd, 1893, under the Presidency of Professor Lannelongue of Paris. The first meeting—devoted to various subjects—will take place at 9 A.M., in the grand amphitheatre of the Ecole de Médecine. The chief inaugural meeting will take place at 2 P.M. Two subjects have been selected for consideration by the Congress:—(1) Fibrous Tumours of the Uterus; (2) the Surgical Treatment of Tuberculous Diseases of the Foot. The mornings will be devoted to visiting the hospitals and to the discussion of diverse subjects. Members are requested to send the titles and abstracts of their papers, not later than Feb. 15th, to M. Félix Alcan, Secretary, 108, Boulevard St. Germain, to whom also all requests for information concerning the Congress may be addressed.

IN the paragraph in last week's issue announcing the appointment of Dr. Anderson Stuart as Medical Adviser to the Government of Sydney, N.S.W., it was unfortunately stated, owing to a clerical error, that the appointment was made "in the place of Dr. F. Norton Manning, '*deceased*.'" The latter word should have read "*resigned*." We sincerely trust that the mistake, which we much regret, has not caused either inconvenience to Dr. Manning or anxiety to his numerous friends.

MR. H. MANSFIELD ROBINSON, LL.D., clerk and solicitor to the Shoreditch Vestry, has pointed out to the Lord Mayor that the provision in the new Public Health (London) Act, 1891, which requires sanitary inspectors to possess certificates of competency would do more harm than good unless such certificates were granted only after a proper practical test.

THE Italian Government has just issued an "ordinanza" recalling into force that of November, 1892, which establishes medical examination of all ships hailing from French Mediterranean seaports, with power to relegate the same to the sanitary stations in cases of suspected illness on board. The "ordinanza" also interdicts the introduction of soiled goods from France into Italy, by land or sea, until these have been disinfected.

THE second Hunterian Society lecture of the session will be delivered by Mr. Walter Rivington, B.A., M.S. Lond., consulting surgeon to the London Hospital, on Wednesday next, the 22nd inst., at the London Institution, Finsbury-circus. The lecture is open to all members of the medical profession. Its subject will be "Certain Branches of Operative Surgery."

THE annual public meeting of the University College Chemical and Physical Society will be held at the College on Friday, Feb. 24th, when an address will be given by Professor Watson-Smith, F.I.C., F.C.S., entitled "Diseases incident to Workpeople in Chemical and other Industries." The chair will be taken by Dr. F. T. Roberts at 8 P.M. Specimens of apparatus will be on view.

A CONFERENCE of representatives of the Port Sanitary Authorities of England and Wales, having for its object the consideration of the necessary measures for the prevention of the introduction of cholera into this country, will be held, in the Council Chamber of the Guildhall, to-day (Friday) at 2 P.M., under the presidency of the Lord Mayor.

THE members of the Anatomical Society of Great Britain and Ireland will hold their general meeting on Feb. 27th, at 4.30 P.M., at Charing-cross Hospital Medical School. After the election of new members a number of interesting specimens of abnormalities will be exhibited and three papers will be read.

THE 120th anniversary dinner of the Medical Society of London will take place at the Whitehall Rooms, Hôtel Métropole, on Wednesday, March 8th, at seven o'clock precisely, Jonathan Hutchinson, Esq., F.R.C.S., F.R.S., President, in the chair.

HER MAJESTY has selected Dr. William Job Collins to be a Fellow of the University of London in the place of the late Lord Sherbrooke. Dr. Collins's name was placed first on the selected list by the recent vote of convocation.

WE understand that Professor Charteris of Glasgow University has been requested to prepare and read a paper on Sea-sickness before the Congress of Medico-Climatologists at the Chicago Exhibition, and that he has consented to do so.

DR. CHARLES CHAUVET, formerly *chef de clinique* in the Lyons Faculty of Medicine, has been sent by the French Government to Russia for the purpose of studying the frequency, the causes, and the treatment of neurasthenia.

THE Milroy Lectures will be delivered by Dr. A. Whitelegge in the theatre of the Laboratories, Examination Hall, Victoria Embankment, on Tuesday and Thursday, Feb. 21st and 23rd, at 5 P.M.

ON Friday, Feb. 17th, a dinner was given by the Port Sanitary Committee of the City of London at the Albion Tavern, Aldersgate-street, London. Mr. David Burnett occupied the chair, and amongst those present were the Right Hon. the Lord Mayor and the Sheriffs and representatives of the Port Sanitary Authorities of England and Wales.

Pharmacology and Therapeutics.

TOXIC EFFECTS OF BARIUM SALTS.

IT has been known for some considerable time that if salts of barium are given in large doses toxic effects are produced. Cases of poisoning of human beings by these salts are, however, extremely rare. Nevertheless, as the therapeutic value of the compounds of barium has been more fully recognised lately than formerly, it is important to ascertain what the poisonous symptoms of large doses of such salts are, and with this object Drs. Pilliet and Malbec[1] have made a series of experiments on animals. Chloride of barium was administered subcutaneously in doses corresponding to a centigramme for every kilogramme of body weight of the animal experimented on. With such doses death occurred within twenty-four hours in dogs; with less powerful doses the animals lived longer; but in all cases toxic phenomena presented themselves. These consisted of persistent vomiting, diarrhœa, albuminuria and hæmoglobinuria, and convulsions followed by rigidity. After death various lesions were found in most of the organs, the most usual being nephritis, the glomeruli of the kidney being especially affected, and hæmorrhages being also noticed in the straight tubes. Lesions in the cellular structure of the labyrinth were particularly common. These pathological changes contrast very strongly with those observed in acute poisoning by mercury; in such cases there is a granular infiltration in the secreting cells of Heidenhain; this infiltration produces an exaggeration of the striation naturally seen in the cells of the convoluted tubes. On closer examination, again, minute traces of hæmoglobin were found in these cells. On examination of the deposit obtained from the urine similar particles of hæmoglobin were found. The histological appearances corresponded exactly with the symptoms observed during life—albuminuria and hæmoglobinuria.

CHLORIDE OF ZINC IN PULMONARY TUBERCULOSIS.

Dr. Jules Comby publishes in *L'Union Médicale*, No. 1, 1893, the results of injections of chloride of zinc in cases of pulmonary tuberculosis. All the cases were early ones, the disease being confined to the apices. The strength of solution employed varied from 1 in 50 to 1 in 20. No bad local effects were produced nor were any unpleasant constitutional symptoms noted. Three drops were introduced by the means of a hypodermic syringe, and the dose was repeated every third or fourth day until four to six injections had been given. The results, Dr. Comby considered, were favourable in the three cases in which he tried the treatment and he maintains that it merits further trial. He was able to demonstrate that a solution of chloride of zinc in the strength above stated could be injected into the lungs, two or three drops at a time, without any danger, and the injections might be repeated without further risk. His object is to produce a cure in the same manner as occurs in the natural arrest of the disease—namely, by development of fibrous tissue. By his experiments on tubercular joints he claims that chloride of zinc tends to promote the formation of fibrous tissue and thus to bring about the desired result.

NAPHTHOL AS A VERMIFUGE.

Naphthol having recently been recommended as a vermifuge, M. Dubois of Amiens has reported a case in which he found it successful after all other vermifuges had failed. The patient was a girl of sixteen who had suffered from vomiting for several months, and the diagnosis pointed to worms as the cause; the vomiting continuing in spite of varied treatment and the girl becoming much emaciated, he decided to order four grains of naphthol three times a day. In the course of a few days she passed thirty-four round worms; the vomiting then ceased and recovery was rapid.

BORATE OF SODA IN PARALYSIS AGITANS.

Borate of soda, which has been found useful by various authorities in epilepsy, has been tried with remarkable success by Dr. Sacaze, *chef de clinique* in Professor Grasset's wards in Montpellier, in a case of paralysis agitans where the actual cautery, electricity, suspension, iodides, and various other forms of treatment had proved fruitless. The drug was given at first in four-grain powders three times a day, and after a few days the dose was gradually increased to about double that quantity. An improvement was manifest by the end of the first week, and after that the patient's condition continued to improve still further. After a time he was able to walk, to speak distinctly, to feed himself, and to write, none of which things he could accomplish before the borate of soda was commenced. No disagreeable effects were produced by the drug.

[1] La Presse Médicale Belge, Jan. 15th, 1893.

THE ACTION OF ANTIPYRETICS OF THE AROMATIC SERIES ON THE BLOOD.

M. Schmidt, Professor of Therapeutics at Nancy, has made a series of experiments as to the action of fourteen antipyretics on the blood. He experimented on guinea-pigs, rabbits and dogs, some of which were in a healthy condition, whilst others were rendered febrile by the injection of septic or tuberculous matter. He found that all the aromatic antipyretics which he studied caused in a greater or less degree alterations in the blood—the fixation of oxygen by hæmoglobin, the transformation of oxyhæmoglobin into methæmoglobin, the diminution of the respiratory capacity of the blood, and even destruction of the corpuscles. These alterations vary according to the nature and dose of the agent, but they all bear some relation to both the period and the extent of the antipyretic action. These substances may be divided into the three following groups: (1) Those (such as phenacetin and antipyrin) which in a medium dose (that is to say, a dose causing a thermic depression of 1°, 2° or 3° C.) only produce the fixation of oxygen by hæmoglobin; (2) those, such as anisic acid, thallin, antithermin, kairin, exalgin, methacetin and acetylamidophenol, which in a medium dose only produce intra-corpuscular methæmoglobinæmia; (3) those, such as anilides (acetanilide or antifebrin, formanilide, methylformanilide) and pyrodin, which in medium doses (especially repeated ones) produce methæmoglobinæmia with destruction of corpuscles. Dr. Schmidt believes that these nervines may be found to be excellent analgesics in the case of patients whose corpuscles are healthy, intact and resistant; but as antithermics their value is open to question and they are for the greater part dangerous on account of their toxic action on the blood. They should on no account be given to anæmic subjects, who all have too little hæmoglobin and too few corpuscles; nor should they be given to patients suffering from fever, when the corpuscles have already been affected. Their action, however, on the corpuscles being of short duration, they may be employed in cases of hyperpyrexia in order to bring the temperature down to a less dangerous point, or they may be used in ephemeral fevers; for these phenacetin, or, better still, antipyrin, is useful as having the least effect on the blood. Antipyrin in small doses never gives rise to methæmoglobin.

BROMIDE OF ETHYL ANÆSTHESIA.

Dr. L. S. Ginsburg, in his graduation dissertation in the Imperial Medical Academy of St. Petersburg, gives an account of a large number of observations on the pharmacological action of bromide of ethyl on dogs and rabbits, which he carried out in Professor Pavloff's laboratory. He administered it by inhalation, by artificial respiration of the vapour and by intravenous injection of an emulsion. He finds that the inhalation of air containing a small quantity of the vapour induces sleep, the blood pressure remaining normal and the pulse becoming more rapid though not losing its regularity. If the air is charged to a greater degree with the vapour the blood pressure is at first markedly lowered, but in consequence of the changes in the respiration and the consequent diminution of vapour inhaled the blood pressure afterwards rises to a little above normal. The irregularities of the cardiac pulsation which occur during the diminished blood pressure disappear as it rises again. If the air is charged with a very large quantity of the vapour there occurs only a slight secondary rise of the blood pressure, doubtless because of the injurious effect of the vapour upon the regulating centre of respiration. In this case respiration is rapidly arrested. The acceleration of the pulse after the inhalation of air containing a small quantity of vapour depends on the stimulation of the automatic cardiac centres or of the accelerator nerves. The slowing which follows the inhalation of a series of large doses is due to the diminution of the irritability of the cardiac muscle. The fall in the blood pressure arises from paralysis of the peripheral vasomotor nerves, and if the doses are large the heart assists in producing this fall. Bromide of ethyl has no effect on the pneumogastric nerves, the vaso-dilator centres, or on the peripheral vaso-dilator nerves. Dr. Ginsburg's researches

show that bromide of ethyl narcosis can be obtained while the blood pressure remains normal, and that when too much bromide of ethyl is given the cessation of respiration precedes that of the heart; but, at the same time, his experiments prove that large quantities introduced into the blood cause considerable disturbance in the heart's action. This last point is one of great practical importance, and shows that in bromide of ethyl narcosis the same precautions ought to be taken as in the administration of chloroform. Anæsthesia comes on rapidly but goes off very soon after the inhalation is stopped, though where the operation is a long one care must be taken that the patient should inhale a sufficient quantity of the vapour. Although bromide of ethyl cannot in all cases serve as a substitute for chloroform, Dr. Ginsburg is convinced by personal experience that it is frequently preferable to the better known anæsthetic.

ON THE ORGANISATION OF MEDICAL RELIEF IN THE METROPOLIS.

BY F. J. MOUAT, LL.D., M.D. EDIN., F.R.C.S. ENG.

PART II.

"Quousque tandem abutere patientia nostra?"

AFTER many years of discussion and consideration, with several unsuccessful efforts on the part of the medical profession to obtain an authoritative investigation of the management and working of the hospitals and cognate subsidiary institutions of the metropolis, the Charity Organisation Society—an irresponsible non-medical body—procured the appointment of a Select Committee of the House of Lords to obtain evidence and report upon the matter. The formulation of the resolution, which was moved by Lord Sandhurst and agreed to, did not contain any indication of more than a restricted investigation, in which some of the most important factors involved had no place. The financial and charitable aspects of the many questions which needed investigation were manifestly the main purpose of the inquisition, as might be expected from its motive power. Their lordships, however, fortunately interpreted their functions more largely and liberally, and yet not sufficiently so to prepare a matured case for legislative action, as I shall endeavour to show in my review of their report.

The resolution was as follows: "That a Select Committee be appointed to inquire with regard to all hospitals and provident and other public dispensaries and charitable institutions within the metropolitan area for the care and treatment of the sick poor which possess real property or invested personal property in the nature of endowments of a permanent and temporary nature, and to receive, if the committee think fit, evidence tendered by the authorities of voluntary institutions for like purposes or with their consent, in relation to such institutions, and further to inquire and report what amount of accommodation is provided by rate and as to the management thereof, and that the witnesses before the said Committee be examined on oath." Accordingly a strong committee of fifteen members, headed by the Archbishop of Canterbury, was formed, and first met on May 5th, 1890. The committee sat for two years and furnished three reports, as well as an excellent analysis of the evidence taken, together with tabular statements of the system of government of all the general and special hospitals and dispensaries and useful details of such particulars as are necessary for their right understanding. These tables are somewhat difficult of reference, but are of great present and future value in the study and determination of the very important questions to which they refer. I endeavoured, in studying the evidence and report, to compare the latter with that of Messrs. Bristow and Holmes in 1863 in their bearings on the questions as a whole; but I found that no comparison was possible, as the two inquiries were conducted on different lines and for a different purpose. The one was by experts who were thoroughly acquainted with the task before them; the other was by noble men eminent in entirely different and more exalted walks of life and of unimpeachable impartiality, but possessed of no technical knowledge and previous training to guide them in expressing an authoritative judgment on the purely medical and scientific aspects of the inquiry committed to their charge. The absence of such knowledge was evident in much of the evidence taken with a patience and manifest desire to get at the truth which command grateful acknowledgment. But the net result of the proposed solution of the question is to substitute as a ruling-power, *caritas* for *sanitas*, a position which the recent proceedings of the subcommittee appointed to frame a scheme for a Central Board of Hospital Control for London render it probable will not be accepted by the authorities of the institutions to which it was to be applied. It will thus prolong a period of *laisser-faire* which has already lasted much too long, and which is calculated to culminate in the undesirable transfer of the whole matter to the State. The interests of the sick poor are far too important to be sacrificed or subordinated to the precariousness of private charity or the continued untrammelled control of bodies which have heretofore successfully resisted all public scrutiny of their proceedings.

The committee in their concluding paragraphs foreshadow this in formulating their suggestions for the creation of a central hospital board for London:—

Paragraph 624.—In sketching the foregoing outlines of a central body, the committee are desirous of expressing their opinion that some more satisfactory organisation of medical charity is most desirable. It should always be borne in mind that the establishment of Poor-law infirmaries and rate-supported asylums under the Metropolitan Poor-law Act of 1867 has in great measure altered the relations between the poor and the hospitals, and everything associated with medical charity; and the committee cannot shut their eyes to the possibility, if some such organisation as they have recommended is not adopted, that a time may come when it will be necessary for hospitals to have recourse to Government or municipal subvention.

Paragraph 625.—It is shown by the evidence that, apart from the three endowed hospitals, the general hospitals in London are maintained principally by the legacies they receive and by large donations from unexpected quarters. In most cases the subscriptions from annual subscribers do not suffice to pay the wages of the servants and nurses in the service of each hospital, to say nothing of the cost of maintenance and administration. It has been authoritatively stated that from £50,000 to £55,000 per annum are required to render available the 1800 or 2000 vacant beds which are said to exist.

Paragraph 626.—One endowed hospital is maintained entirely by its endowments, but the two others are so short of funds that many beds are closed to the sick poor.

How is it possible, in the face of so startling a revelation as this, to maintain the existing system? A speculative and unsound scheme of socialism can command a levy of £100,000 with a demand of £30,000 annually for its maintenance. An endowed hospital, with a diminished endowment of £26,000 a year—which ought, however, by careful and judicious economy and management, to be amply sufficient to fill its beds—can also raise £100,000, which is employed for its current needs, instead of adding to its permanent income, whilst most of the voluntary hospitals are starved. There are other indications of injudicious or extravagant management which appear to me to prove that the time of change of procedure predicted by the Lords' Committee has arrived, and that the setting in order of the house should be no longer delayed. The statement, then, of the Lords' Committee reveals and establishes the fact of the failure of the voluntary system in relation to the general hospitals of London. The evidence does not indicate the exact causes of this failure, if they can be ascertained, but it clearly shows that there is something radically wrong in a system of management which takes no effective steps to prevent its being injurious to the sick poor. It is to be regretted that their lordships, with this failure before them, did not examine more closely into the system adopted in the Poor-law infirmaries, so as to bring them more into harmony with the general hospitals. This can easily be done by extending the principles of management of the former, robbed of their indefensible harshness in the working of that portion of the Poor-laws which compels temporary poverty from sickness to be regarded and treated as destitution. This is, moreover, the origin of one of the chief abuses of the voluntary system—that of affording gratuitous relief to many who have no claim to it from want of means or any other cause. It is a part of the old fallacy of the immorality of State aid in charity as compared with private benevolence for the same end, which latter is infinitely more abused and demoralising, and a much greater enemy to thrift than the former. Their lordships declined, however, to

entertain or consider any proposals tending to connect the State with hospital management, which appeared to be as much a *bête noire* to them as it seems also to be to the uncompromising advocates of private charity and thrift.

The limits of the voluntary principle have evidently been reached and passed in London. One of the most learned and benevolent workers and writers on the management of the poor said, in dwelling on this subject some fifty years ago, that when the subject of private charity is thus narrowed, if we trust to experience and not to speculation as our only safe guide, there is clear and overwhelming evidence of the inadequacy and insufficiency of voluntary charity in advanced stages of society, to supply what is needed for the wants of the poor in their own interests and in those of society itself. This is, indeed, the guiding principle of the Poor-laws themselves when administered with the care, judgment and humanity required to mitigate those elements of harshness which are to a great extent inseparable from them.

Upon this subject, after careful study and considerable personal experience, I entertained and published some ten years since, in THE LANCET and elsewhere, when advocating an official inquiry into the subject, views and suggestions which are as applicable now as they were then and long before. We have recently had our distinguished committee of inquiry, not exactly in the form best adapted to settle the question, yet a notable and valuable landmark for future guidance. This inquisition has thrown some most useful side-lights, but afforded no fresh information on the subject, and the question appears to be little nearer to solution than when dealt with by Sir John Simon in 1863 and by myself in 1883. Another decennium has passed and a century has elapsed since the promulgation of the masterly report of Tenon, yet the whole question is again under review.

But times and thoughts and manners and customs have since undergone complete and almost revolutionary changes in their adaptation to the progress and wants of the present. In the high-pressure life of the Victorian era, in most social and almost all national and international relations, old landmarks have been removed, and the accepted facts of yesterday have become the rejected fictions of to-day. The rapid advances of science in its applications to the purposes of life in association, have added much to the comfort and happiness of mankind, and in no branch of sociology has this been more manifest than in the progress of medicine in the relief of sickness and the prolongation of life. To it we owe the priceless blessings of extinction of pain in disease and the robbing of many sources of destructive diseases of their powers of evil.

Why, then, should not our hospitals be brought into harmony with this progress, and accept instead of reject changes which have become imperative? It is true that some old practices and customs die hard, more especially when those who have a personal interest in their continuance resent any interference with them. Yet, it is impossible in the long run to resist the advancing tide of civilisation, and it is wiser to bend than to endi · such matters. For example, there are few problems connected with the phenomenal growth of London that are more complex in character, more encumbered by conditions of life of which little that is certain is known, and in consequence more difficult of solution, than that of the relief of the sick poor in an aggregation of human beings on a restricted area, some 30,000 or more to the square mile, such as the world has never before seen. They comprise every caste, class and almost race and condition of life from the highest down to the most squalid objects of misery, destitution and suffering in existence, most of which conditions are factors of more or less significance which need consideration in dealing with all the greater problems of sociology connected with the management of the poor.

I would rather reproduce what I wrote on the subject some years ago than consider it with the light and experience that have since been brought to bear upon it, for obvious reasons. I then said that from a careful review of the whole question, taking into account the vast proportions of the poor of London [and of those immediately above them, the artisan and working classes generally], the resources of the general hospitals, voluntary and endowed, are becoming dangerously strained; that from their *quasi*-eleemosynary character and consequent conflicting regulations and interests a large number of the really poor, for whose relief they are intended, are excluded from their benefits, whilst many who can afford to pay for medical care and treatment receive them gratuitously, a demoralising proceedir g, tending to prevent the exercise of thrift and destroying the principle of self-restraint and self-denial in even a more objectionable manner than the grave abuses of the out-door medical relief intended for the permanently destitute.

General and indeed all other hospitals are public institutions of the first necessity, and no personal or proprietary rights in relation to them should be permitted to interfere with their regulation in the interests of the public. This regulation can be carried out so as in no way to interfere with the maintenance of such control and management by the subscribers and supporters, as will not be inconsistent with that object. A system can surely be devised to harmonise public aid with the action of the voluntary institutions so as to secure to the latter all such rights and privileges as can be justly allowed in the terms of their charters and the conditions of their subscriptions and bequests, but always without detriment to their primary purpose—the relief of the sickness of the poor compelled to resort to public institutions in their hour of need. Charity should not, I think, be a purchasable commodity; and I concur entirely with those who are of opinion that it is not money so much as organisation that is most needed. Charity would then occupy its proper place in all schemes of benevolence, and not be allowed to assume a predominating voice and influence in the management of such composite institutions as hospitals. In my next communication I shall examine various details of the question which are contained in the report of the Select Committee of the House of Lords.

Durham Villas, Kensington, W.

CHOLERA.

CURRENT NOTES, COMMENTS AND CRITICISM.

THE sharp outbreak of cholera at Marseilles, to which we called attention last week, like other outbreaks of a similar nature elsewhere, attained its maximum development in the course of a few days and then began to decline. On the 11th inst. there were only 6 deaths from choleraic disease, and on the following day there were 8 deaths registered from the same cause and a few fresh cases were also reported. We have no official notification of the exact nature and extent of the disease that has prevailed, nor have any assigned causes of its origin been definitely stated. It is alleged, however, that the comma bacillus had been found in one case, but not in all the cases that had been bacteriologically examined. The sanitary state of Marseilles is now stated to be satisfactory. Since the 13th inst. no deaths or fresh cases of choleraic disease have occurred.

The reports from the Nietleben Asylum are satisfactory, the outbreak at that institution, although of a very severe and fatal character, having run its course within a comparatively limited time.

It is important to preserve a precise record of the facts connected with these circumscribed outbreaks of this disease in order to see whether some law or average cannot be deduced by comparing a number of these occurrences together as to what is the duration of such outbreaks under given circumstances. Cholera, like other diseases, has its own natural history and laws, and until a systematic attempt is made to arrange and classify all the facts about it we are not likely to formulate any scientific and useful conclusions. Results that are natural and would in any case have followed in due course are likely to be sometimes erroneously attributed to the action that we have ourselves taken, unless we first of all know what is the natural course of an epidemic disease under given circumstances.

CHOLERA IN FRANCE.

(FROM OUR SPECIAL CORRESPONDENT.)

A VISIT TO CALAIS.

How Cholera came to Calais.—Forcible Measures.—Draining into Canals.—The Channel Steamers and Cholera.—The Subsoil Water.

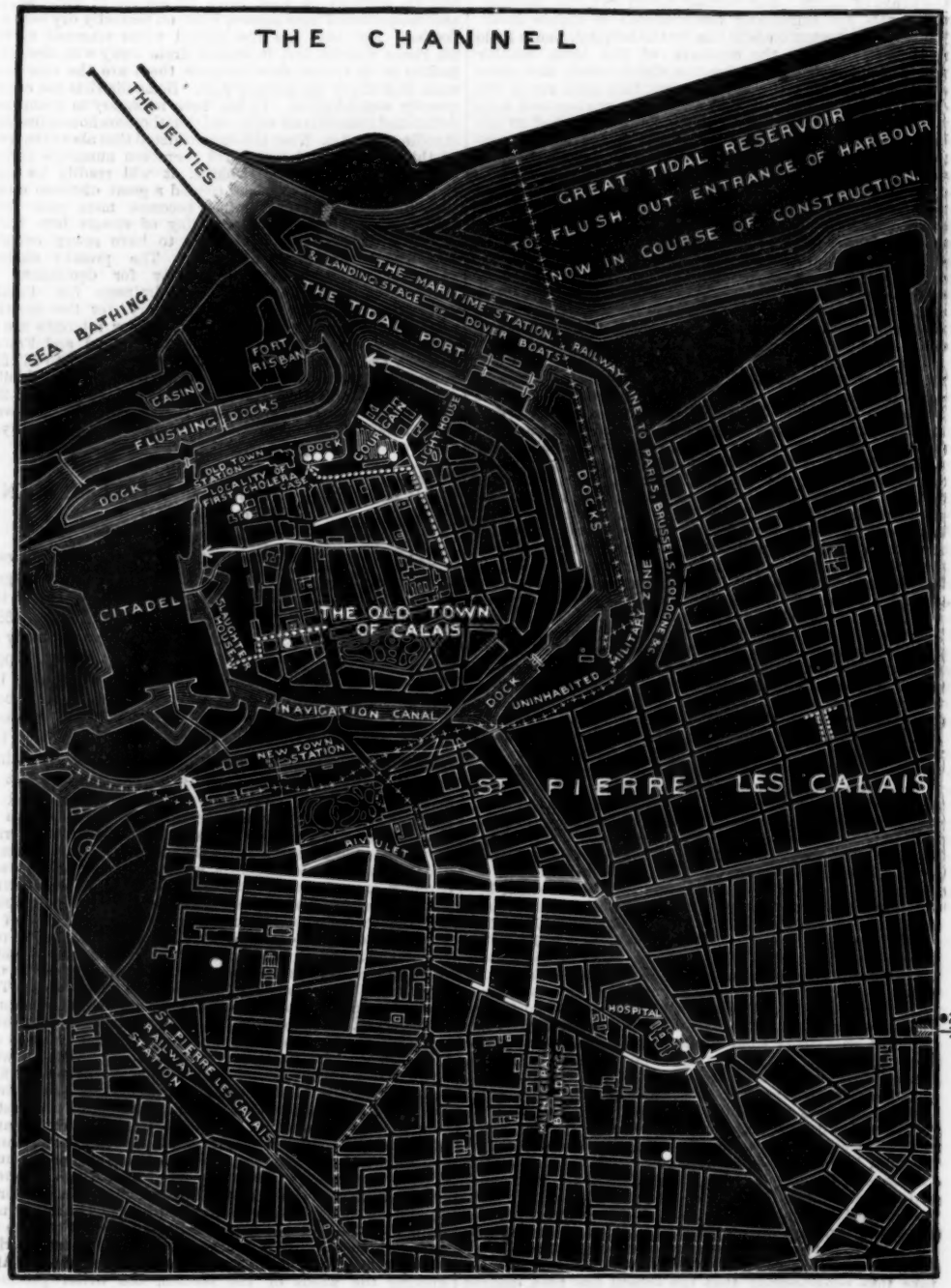
WHEN describing the improved facilities for travelling on the Continent I gave some account of the drainage of Calais and the progress that had been accomplished of late years; but, though many new sewers have been built, as will be seen

by examining the accompanying map, the sanitation of the town is still very imperfect. Under such circumstances it is not surprising that some cases of cholera should have occurred at Calais during the autumn. These cases fortunately were not numerous, probably about seventy in all; but they suffice to demonstrate the danger that besets a town which is situated on the high road of international communications and which is yet so imperfectly drained. Whatever may be the number of cases of cholera, and this, even where the most careful record is kept, can never be very satisfactorily ascertained, there were, according to M. Cuisinier, the "doctor for epidemics," twenty-four deaths due to cholera. Cholera is supposed to have been brought to Calais by some fishermen from Portel, a suburb of Boulogne-sur-Mer, and it seems very probable that Portel was infected by excursionists from Paris. Towards the end of September a fishing smack arrived at Calais from Portel with a youth, an apprentice, ill on board. The authorities at Calais did not feel disposed to take charge of the patient, and the skipper of the fishing boat was forbidden to bring him into the town. The skipper consequently hired a carriage and drove the sick youth from Calais to Boulogne. As cholera already prevailed in the latter town, the patient was properly nursed and he recovered. The skipper, having thus successfully disposed of his apprentice, now returned to Calais, and was staying in the town when he in his turn was attacked by cholera. The case was so serious that he had to be taken to the Calais hospital, where he died. This apparently was the first death due to cholera at Calais. I made some inquiries, but could find no trace of the carriage which had conveyed the skipper and his apprentice to Boulogne, nor was there any record to show that it had been disinfected. When, however, the skipper himself died in the Calais hospital the authorities awoke to the gravity of the situation. They seized his boat, and to ensure its thorough disinfection had it sunk in the harbour. It was not till ten days later, and in the month of October, that another case occurred. The victim this time was a native of Calais. He lived in a cellar in the Rue des Pélerins, one of the worst and most miserable streets of the old town, situated near the moat of the citadel and not far from one of the principal sewer outfalls. This man was a rag-picker, but he had nothing to do with imported rags. He merely went about picking up any rags he could find in the streets of Calais. He was taken with his wife to the hospital, and the next day the authorities, being duly impressed by the dirty, overcrowded and insalubrious nature of the house in which this man had lived, ordered its immediate evacuation. The French law is peculiar and perplexing. In such cases it gives the mayor the power to do everything, but does not stipulate that he shall do anything. The matter practically is left to the discretion of the mayors, and as a result they very generally refrain from touching the property or interfering with the liberty of their electors. But under the stress of a cholera scare they will sometimes take very extreme measures; though to prevent, for instance, a small-pox epidemic, they would hesitate to take any precautions whatever. In the present instance the mayor of Calais not only ordered the twenty-four tenants living in the infected house to at once leave the premises, but he requisitioned a house wherein to lodge them all. At first the owner of this house consented, but afterwards he refused. The authorities, however, did not care whether the owner of the house consented or did not consent. Availing themselves of the absolute powers conferred on the mayor in such circumstances, they requisitioned the house—that is to say, they took forcible possession of the premises. Of course the owner will be compensated and will probably receive whatever sum he may choose to ask. It does not matter much if for the few weeks the house was utilised an exaggerated rent be paid. What is really important in this matter is the fact that the mayor was able, without the loss of an hour, to do what was necessary. Here was a cholera den occupied by twenty-four tenants. Legal difficulties did not occasion any loss of time; the nearest and most convenient empty house was requisitioned, the tenants were put in that house and were kept there for fifteen days, whilst the infected house was undergoing thorough disinfection—whitewashing, repairs &c. But just at the moment that the removal of the tenants was taking place the son of the rag-picker fell ill, so he was sent to the hospital and the entire family was also sent to a special ward of the hospital where they were kept under observation. Thus only the other tenants went to the requisitioned house. In the same evening the rag-picker's daughter-in-law and her child were in their turn seized with cholera, whilst they were under observation at the hospital which they had entered but a few hours previously. The rag-picker, his wife and his son, died from cholera; his daughter-in-law and grandchild alone recovered. Thus there were five cases in the one family resulting in three deaths.

This happened at the extreme north-west of Calais; the next case occurred some two or three miles away to the extreme south-west of the town, and the victim was also a rag-picker. These persons were all extremely poor, loungers about the port, picking up a precarious existence in a variety of ways, and notably by selling whatever old rags they could find. The second rag-picker also died. The next two cases occurred on board fishing boats anchored in the port. It will be noted that in the small inner port called the *Bassin du Paradis*, or the Paradise Dock, there are three deaths marked. In my previous articles on the sanitary condition of Calais I insisted at length on the abominable condition of this little dock, or rather it should be called an inner tidal port. I described the bad old sewer that fell into the Paradise Dock. The accompanying map gives the course followed by this old sewer. As there is but a slight current from this dock to the outer port, and thence to the sea, all the slime, floating particles, dirt &c. brought down by the sewer are deposited at the bottom and not carried away to sea. When the tide runs out the filth is laid bare and an abominable stench results. Further, I related that the town authorities wanted to dredge up all this filth and carry it out to sea, but the fishermen strongly objected. They maintained that the sewer deposits made a soft bed for their boats to rest upon when the tide was out and the dock dry. It was urged that, though soft, the mud was composed of dangerous filth. The fishermen, however, altogether failed to appreciate this objection; they valued their boats more than their health and would not hear of any measures that would tend to harden the bottom of the port on which their boats rested when the tide was low. Even now that three deaths from cholera have occurred among the crews who were taken ill while on board these boats, nothing has been done to clear away the mud deposited by the sewer in the Paradise Dock. In my previous accounts of Calais I also described the Courgain district, the fishermen's quarter which lies just between this dock and the lighthouse. The little houses in the narrow streets of this district have no closets, and in the centre there is a sort of kiosk where the inhabitants empty their pails every morning, whilst the slop water drains away by the gutters to the new sewer that runs through the centre of this district. Though the inhabitants keep their houses clean, still this is an overcrowded and unhealthy quarter, and, according to M. Cuisinier, was the quarter that suffered most from the cholera, though I only know of two deaths having occurred here. It was in the Courgain district that a slight riot took place. Some patients were forcibly removed to the hospital; and, as they had money enough to pay for medical attendance and to nurse themselves in their own homes, the neighbours considered that they were treated with unnecessary harshness. A crowd gathered, angry cries were raised; but when the patients returned a few days later from the hospital this angry feeling subsided. The patients explained that they had been placed in a new, well-aired wing of the hospital; that they had been well nursed by Sisters of Mercy, who had been sent from Paris because they were experienced in the treatment of cholera, and that they had good medical attendance. Also it was found that rich and poor were treated alike and thus the unfavourable impression is dying out.

Though there were more cases in the old town, near the Bassin du Paradis and the Citadel Moat, still cholera broke out in all the four quarters of the town. The first death took place at the end of September, then there were four deaths in October, eight in November and eleven in January. At the same time, it is curious to note, the general death-rate in the town during these four months has been considerably below the average. The dots on the accompanying maps show where most of the patients who died from cholera had lived. The two dots at the hospital represent the Sister of Mercy and the male nurse, who both died in the fulfilment of their duty. The map also gives the course followed by the old and the new sewers. The small white dots represent the old sewers and the broad white lines the new sewers. It will be seen that nearly all these sewers have their outfalls into canals. Of

MAP OF CALAIS.



Dotted line, old sewers. Thick line, new sewers.

course the water is occasionally drained out of the canals, but only occasionally. The canals are below the high tide level, the water can only be drained out of them at low tide, and the water from the canals can leak into the subsoil of the towns. These canals communicate with the Belgian canals, and a large number of the cases of cholera which have occurred in Belgium have occurred on board barges and on the banks of canals. But, without going so far as Belgium, the canals are sufficiently contaminated in Calais itself. There are two sewer outfalls just by the hospital, one a little further off towards the outskirts of the town, another where the Marck canal joins the Calais canal, and three sewer outfalls in the canal or moat that goes round the citadel. Numerous locks shut up all this sewage and keep it stagnant for many hours, so that it is deposited at the bottom of the canals, engenders foul gases, and permanently poisons the water. The sewers receive all the slop and rain water of the town. The streets that have no sewers drain into the gutters and these gutters flow to the streets where there are sewers. Undoubtedly there should be a main sewer constructed into which all the other sewers should have their outfalls. It would then be necessary to build a pumping station by which the whole of the sewage could be sent out of the town to a safe distance. When this is done there could be no objection to abolishing the abominable cesspools and draining everything direct into the sewers. There would then be no further befouling of the waters of the canals and of the port.

The outline of the old historical town of Calais and the new manufacturing district of St. Pierre-les-Calais—formerly different communes but now amalgamated into one township—is easily discerned in the accompanying map. The old walls have almost entirely been removed; but the neutral military zone outside these walls, where it was forbidden to build, not to interfere with the range of the guns, still remains and constitutes a broad open space round the old town of Calais which is thus separated from St. Pierre. On this neutral military zone have been built the new docks, the navigation canal, the new town railway station and the new railway line to the port and Maritime Station. At this latter station the Dover boats land their passengers on an open spot swept by the sea winds and separated by the broad port and uninhabited dock buildings from the old town. The railway line, as if fearing some contamination, curves round at as great a distance as possible from the old town and near to the as yet unbuilt districts of the new town. By travelling round the neutral zone, well away from habitations, the town station is reached, and thence the lines branch off to Paris, Belgium or Germany. Thus persons who land from the Dover boat and take the train at the Maritime Station can scarcely be said to enter the town of Calais; they pass through the parks and gardens of Calais and not through any of its streets. Consequently travellers to the Continent need not entertain any apprehension in taking the train at Calais, even should the few cases of cholera which have occurred prove to be only the precursors of a serious epidemic. The railway line and the Maritime Station are too far removed from any likely epidemic centre. There would nevertheless be a danger if the inhabitants of Calais drank well water, but the town has an excellent supply of pure water from Guisne, known historically as the Field of the Cloth of Gold. This water, brought to Calais in iron pipes, is not likely to be contaminated. For further surety, when it was known that there were some cases of cholera at Calais, the crews of the Dover and Calais passenger steamers were forbidden to land at Calais. Under these circumstances the presence of cholera at Calais should not interfere with the traffic of passengers from Dover, through Calais, to other parts of the Continent; but there is no accounting for what panic will do, and in other respects the existence of cholera in Calais must be very injurious to the interests of that port. Consequently it is gratifying to hear that there have been no further cases during the month of January, but the small epidemic which has taken place should serve as a warning.

So far, however, no effort has been made to profit by the existence of cholera at Calais, to urge the claim for further and greater sanitary improvements; yet the subsoil of Calais seems specially subject to contamination. Apart from the system of drainage which allows the slops to travel long distances in gutters before they reach the sewers, and apart from the fact that cesspools must leak more or less, we must take into consideration that the subsoil has been drained during sixteen years by the pumping operations necessary to carry out the harbour works. In consequence of this pumping, whilst the docks were being built, wells in the St. Pierre district were completely dried up. Of late years this district has greatly increased, many new houses have been built, and for these good dry foundations were found. Now, however, the harbour works are finished. After sixteen years the pumping operations have suddenly ceased, with this result that the wells which were dried up are full of water again, and the cellars of new houses, built on perfectly dry soil, are flooded. Not only has the subsoil water returned to the St. Pierre district, but it cannot drain away with the same facility as in former days, because there are the new dock walls that check the natural flow. Some districts are consequently water-logged. It has been necessary to pump out cellars and cement their walls, and thus there are houses literally standing in water. Now, if it be considered that above the level of this underground watershed there are numerous sewer-contaminated canals, all leaking, it will readily be seen that specific germs could be carried a great distance under inhabited houses. It therefore becomes more and more imperative to prevent the draining of sewers into these canals. It is absolutely wrong to have sewer outfalls into canals of stagnant water. The present cholera scare is an excellent opportunity for demanding a proper and complete system of drainage for Calais. Not only is this absolutely necessary for the security of the inhabitants of the town, but wider interests are at stake; for passenger traffic between England and France through Calais is ever increasing. It amounted to 247,850 persons in 1888, rose to 345,934 during the Universal Exhibition of 1889, and in 1891, a normal year, there were 265,283 passengers who crossed the Channel between Calais and Dover. Such a traffic as this imposes a certain moral responsibility.

SWEARING ENGLISH WITNESSES IN SCOTCH FORM.

UNDER this heading there appears in the *Solicitors' Journal* of the 11th inst. a very able article by Mr. F. A. Stringer, author of a work on oaths and affirmations, in which all the difficulties created by the fifth section of the Oaths Act, 1888, are exhaustively dealt with. Mr. Stringer is an authority on this subject, and a few extracts from his article will supply the answer to the doubtful point which was left open in the annotation on page 310 of THE LANCET of last week, while confirming those points on which there was no doubt expressed. Allusion is made at the commencement of the article to the friction which is occurring in consequence of the uncertainty which prevails as to the precise meaning and effect of Section 5 of the Oaths Act, 1888. "The demand of witnesses, especially medical witnesses, to be sworn in the Scotch form, as permitted by the section referred to, is becoming general all over the country, and we regret to say the officials in local courts, and magistrates, justices and coroners, are quite unequal to the occasion." After referring to the apparent ignorance of the enactment by some officials and the confusion, in the minds of those who know of it, between the Scotch oath and an affirmation the article proceeds: "We could mention several other instances which show that great ignorance and confusion of mind exist on this subject. A very strong attitude has been taken up by THE LANCET and the *British Medical Journal*, and, as a natural consequence, doctors everywhere refuse to be sworn by kissing the book, and demand, as they have a perfect right to do, that they shall be sworn in Scotch form." After showing how the difficulties had arisen from the wording of the fifth section, which is fully quoted, and after dealing exhaustively with the Scotch oath and its form and manner of administration, the article proceeds: "Certainly we may say as a matter of opinion, if swearing is to be retained in our legal proceedings, the Scotch form of oath appears to us to have more solemnity and dignity about it than our method of kissing a generally greasy-looking ancient Testament, which, as a matter of choice, we should have avoided handling." The article next deals with the application of the Scotch form of oath to the requirements of English proceedings, and the absolute right of any person to be sworn in that form is thus upheld. After quoting the words of the section, the writer proceeds: "These words can only be construed as meaning that in

every case where an oath is required by law, and for every purpose, the Scotch form must be administered if the person 'desires' to be so sworn." The mere expression of the desire is sufficient, and any inquiry into the person's reasons for desiring it is illegal. The concluding words of the section are: "and the oath shall be administered to him in such form and manner *without further question*." The remainder of the article is devoted to clearing up the doubtful point as to whether the Scotch oath could be administered by those authorised to administer an oath in England. After quoting from Section 1 of the Commissioners for Oaths Act, 1889, and reading it with the Oaths Act of 1888, the writer observes: "Can it be reasonably doubted that the power conferred by the two sections of the Commissioners for Oaths Act, 1889, which we have quoted, 'to administer any oath,' was intended to include the Scotch form of oath which had been previously prescribed? We do not think it can." The article concludes by reiterating that if any witness, jurymen or deponent attends in any English court, or on any inquiry or inquest, or before an examiner, arbitrator, referee or umpire, or commissioner for oaths, or anyone having power to administer oaths, and such person expresses the wish to be sworn in the Scotch form described above, he has a legal statutory right to be so sworn, without any question being asked him, for all purposes for which an oath is or may be lawfully required. The same rule, moreover, must be applied to promissory oaths of all kinds. Whether all those who preside in our law courts will agree as to the form in which the Scotch oath is to be administered remains to be seen. But it is unlikely that any difficulty will be placed in the way of witnesses wishing to be so sworn, or that any questions will be asked now that their illegality has been shown in legal as well as in medical papers. Medical witnesses are modest and respectful in their bearing towards legal officials; may they always continue so. But they are entitled to every reasonable courtesy and consideration from the latter, and it is to be hoped that we shall not hear of any more questions being asked of anyone wishing to be sworn with uplifted hand.

THE ACTION OF LIGHT ON BACTERIA.

IN *Nature* there has been published a report of Professor Marshall Ward's experiments on the action of light on the bacillus anthracis, in which corroboration of some of the more important points as to the action of light on micro-organisms is brought forward.

Professor Marshall Ward's experiments appear to have been carried out with considerable care and with a certain number of control experiments. His method of procedure was to inseminate gelatine or agar-agar with spores of bacillus anthracis, to pour the fluid medium into Petri's dishes and allow it to set to form a plate, then to fix a stencil-plate on the under surface of the dish and cover the whole (with the exception of the letter in the stencil-plate) with black paper; he then exposed the plate either directly or by means of a reflecting mirror to the action of December sunlight so that the light could only act on the gelatine or agar-agar exposed through the stencil letter. Two of his plates, kept for eighteen hours in a drawer and then exposed for five hours, had colonies developed all over the surface, except on that part which had been exposed to the light through the letter, where the medium remained perfectly clear, giving sharply marked letters in both cases. In this case, Professor Marshall Ward thinks, the spores were acted upon just at the time they were germinating, and therefore during their most tender period; so that they were killed off very perfectly and rapidly. In other cases the line of demarcation was not so distinctly seen, the margins of the letter and the spores there sown receiving reflected rays from the glass cover of the plate. The general result of his experiments was that the actinic rays of light, quite apart from the heat rays, act as germicidal agents.

Professor Marshall Ward's method of demonstrating the result obtained indirectly by Engelmann and directly by other observers is an exceedingly telling one. Even though but few of the Fellows of the Royal Society were able to appreciate the importance of the demonstration, most of them must have been struck by the ingenuity with which it was devised. Professor Marshall Ward's general results agree with those obtained by Downes and Blunt and by Tyndall, the latter of whom, although he failed to prove that germs were destroyed by sunlight, was nevertheless able to show that their vitality was very markedly interfered with. In France, where this question has had considerable attention paid to it by Arloing, Nocard, Duclaux, Straus, Roux and others, it has been proved most conclusively that light has a direct germicidal action, not only in the case of the anthrax bacillus, but also in that of various other species of micrococci and bacilli; and some years ago it was pointed out that light might be made to play a very important part in the attenuation of the virulence of anthrax vaccine. It has, however, been insisted on by some observers that the action of light is not altogether a direct one, but that light acts indirectly by altering the medium in which the organism is growing, and quite recently Duclaux has again returned to the attack on these lines, he holding that under the action of light there are developed in almost all the nutrient media with which we are in the habit of working, certain substances which, even when present in very small quantities, exert a very powerful germicidal influence.

The recent observations made by Koch on the action of direct sunlight in killing the tubercle bacillus, even in the space of a few minutes and regularly in two or three hours; Roux and Yersin's experiments on the action of light on the diphtheria bacillus; Buchner's, Janowski's and Geisler's experiments on the typhoid fever bacillus are all of very great interest, the two latter observers finding that the parts of the solar spectrum and the spectrum of diffused sunlight were far more active in preventing the growth of organisms and determining their death at the violet than at the red end, whilst Geisler has found that similar results might be obtained even when the electric light is used, especially with the violet rays of its spectrum. Of course the more delicate experiments were done, as Tyndall's earlier experiments were, by noting the restraining action of light on the development of the various microbes used rather than by determining the actual death of the organism. Another very important point recently demonstrated, but one often hinted at and even noted before, is that observed by Momont, who found that dry anthrax spores might be exposed with impunity to the action of light for a very considerable time, whilst moist spores exposed to sunlight for forty-eight hours in the presence of oxygen were so devitalised that they could not grow at all. Bacilli without spores under similar conditions were deprived of their vegetative activity by exposure to sunlight in from one to two hours or even less, but in the absence of oxygen very long exposure—forty to fifty hours—was not sufficient to prevent them germinating when introduced into a suitable medium.

Public Health and Poor Law.

LOCAL GOVERNMENT DEPARTMENT.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Health of the County of Worcester, 1891.—The report of Mr. Fosbroke, the county medical officer of health, has just reached us. It takes the form of a digest of the district reports, together with an introduction by the county medical officer. Mr. Fosbroke again points out the great desirability of all sanitary authorities putting into print the reports of their medical officers. It appears that out of the forty-two reports received by the County Council, thirteen were unprinted, a fact which does much to prevent their due appreciation by the public. Before dealing with the vital statistics, Mr. Fosbroke, very properly, warns his readers to be cautious in the deductions they draw from them, and he enumerates several statistical fallacies by way of illustration. It is much to be regretted that the value of these statistics is somewhat impaired, partly by the reason of omissions in some district reports and partly owing to the fact that the census details, as regards the rural districts, were not available at the time of making the report. In the urban district of the county the death-rate amounted to 18·5 per 1000, but that for the rural districts is not given. The zymotic death-rate varied from 0·3 to 2·3 in the urban and from 3·0 to 3·7 in the rural districts. The highest infantile mortality amongst the urban districts was that of Bewdley, where it reached the high figure of 266 per 1000 births, while amongst the rural districts Worcester heads the list with

a rate of 235. There were at the end of 1891 two sanitary districts in the county—those of Stourbridge (urban) and Tewkesbury (rural)—which had so far declined to adopt the Notification Act, but we hope that by this time they have been added to the list, and that the county has in this respect been made complete. During the year five of the authorities have provided isolation accommodation, but there are still twenty-two districts without any proper provision for patients of all classes. As regards sanitary administration in the county, Mr. Fosbroke tells us that the Housing of the Working Classes Act, 1890, has not been put into proper operation, and that only one "closing order" has been received. We hope to hear in the next report that the county council has made use of the powers conferred upon it by Section 45 of the Act. Eighteen localities are enumerated in the report as possessing defective sewerage, as also are some sixteen with bad water-supplies. County sanitary by-laws are said to be under consideration. The report is one which cannot fail to be of value to all those in the county who are interested in public health.

Pudsey Urban District for 1892.—The estimated population of this district in the middle of 1892 was 13,590; the death-rate for the year (which is stated to be the lowest on record) was 16·63 per 1000, and the zymotic death-rate 1·03. The infantile death-rate was 153 per 1000 births. The question of a proper system of sewers for the district is now receiving attention, and Dr. Hunter is pressing upon the urban sanitary authority the desirability of providing at the same time proper subsoil drainage. Dr. Hunter advocates the more frequent cleansing of the privy-middens, which seem to prevail widely in the district, and this is a point which should no doubt—in view of the cholera prospects—receive immediate attention. Owing to the prevalence of tubercle amongst the cattle of the district, particular attention was paid to the cowsheds, the sanitary condition of which appears to be far from what it should be. The importance of a speedy improvement in this direction is still further accentuated by the fact that a large quantity of Pudsey milk is sold in Bradford and Leeds. The water-supply of the district possesses, Dr. Hunter reports, two serious defects—its cost and the fact that it takes up lead from the service-pipes; it appears that several of the many samples of water analysed yielded as much as 0·7 grain of lead per gallon. The report concludes with some excellent recommendations to the urban sanitary authority, and we hope they will be adopted.

Leeds Urban District for 1891.—Dr. Spottiswoode Cameron issues for the year 1891 a very full and interesting and exhaustive report, and we regret our space will hardly permit of our noticing it as fully as it deserves. The death-rate for the year was 22·91 per 1000, which shows an increase of 0·20 on that of 1890 and of 1·75 on the rate for the quinquennium 1885–9. This excess is no doubt due in large part to influenza and its sequelæ. Compared with the general death-rate of the twenty-eight large towns Leeds shows an excess of 0·36; but when, as Dr. Cameron points out, the comparison is made with other towns of the United Kingdom which have a population of over 250,000, Leeds is found to stand fourth on the list; the healthier towns in order of merit being London, Edinburgh and Birmingham. The death-rates of the different municipal wards of the borough varied from 16·9 in Headingley to 32·4 in East Ward. The zymotic death-rate was 2·41, which was practically the same as in 1890 and 0·37 below that of the quinquennium 1885–9. The infantile death-rate was 177 per 1000 births, as compared with 175 during the previous year. A large part of the report is devoted to a detailed consideration of special and zymotic diseases, and exhaustive tables are given showing the age and sex incidence of each disease, together with the sanitary condition &c. of the houses attacked. Dr. Cameron gives a full account of the limited outbreak of small-pox which occurred in the borough during the autumn of 1891, and he refers to the way in which the difficulties of tracing the cases are enormously increased by the absence of compulsory notification. It is interesting to note that of 123 persons sent for observation to the sanatorium nine developed small-pox. Dr. Cameron, at the conclusion of his elaborate report, which to be appreciated must be read, expresses a hope that his committee will before long avail themselves of the increased facilities offered by recent legislation for dealing with infectious diseases—a hope which Leeds will surely endorse.

Stapleton Urban District.—During the year 1892 the death-rate in this district was 17·5 per 1000, and the zymotic rate 1·209. The infantile mortality was 140·4 per 1000 births as compared with 161·6 for 1891. Dr. Brown tells us that in connexion with some cases of diphtheria he found the most serious insanitary conditions, and he further draws attention to the indifferent character of the water-supply of the district. It appears that all the samples of water submitted to him for analysis fell far short of the required standard of purity, a fact not altogether surprising when we learn that the water is derived from shallow wells. Dr. Brown complains of the condition of the cowsheds, where there seems to be considerable overcrowding and defective drainage. We are glad to hear the sewers have been extended, but wish the report held out prospects of a proper water-supply.

Kettering Urban District.—The population of this district has increased considerably during the last two years, and is now estimated at 21,000. The general death-rate for 1892 was 16·1 per 1000, and the zymotic death-rate only 0·6; while the infantile mortality, which, as Mr. Dryland observes, is much too high, amounted to 154 per 1000 births. The number of deaths from phthisis has been gradually diminishing for some years, and this is attributed in great measure to the improved condition of the factories. We notice with regret the existence of twenty-five cases of typhoid fever during the year. The report states that the Notification Act "has worked exceedingly well and without the least friction"; and it is gratifying to hear that the infectious diseases hospital is proving a success. A plentiful and good supply of water has been obtained, and steps are about to be taken to purify the sewage effluent. A record of work done by the inspector of nuisances is annexed to the report, and shows evidence of zeal and energy.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In thirty-three of the largest English towns 6819 births and 3934 deaths were registered during the week ending Feb. 11th. The annual rate of mortality in these towns, which had declined in the preceding five weeks from 29·2 to 20·2 per 1000, further fell last week to 19·9. In London the rate was 19·1 per 1000, while it averaged 20·4 in the thirty-two provincial towns. The lowest rates in these towns were 14·9 in Wolverhampton, 15·4 in Cardiff, 15·5 in Huddersfield and 16·1 in Nottingham; the highest rates were 22·3 in Blackburn, 22·8 in Liverpool, 23·7 in Preston, 24·1 in Manchester and 25·9 in Bradford. The 3934 deaths included 361 which were referred to the principal zymotic diseases, against 396 and 351 in the preceding weeks; of these, 91 resulted from whooping-cough, 80 from diphtheria, 73 from measles, 43 from diarrhœa, 41 from scarlet fever, 21 from "fever" (principally enteric) and 12 from small-pox. No fatal case of any of these diseases occurred last week in Burnley; in the other towns they caused the lowest death-rates in West Ham, Swansea, Wolverhampton and Sheffield, and the highest rates in Portsmouth, Salford, Plymouth, Derby and Bolton. The greatest mortality from measles occurred in Brighton, Portsmouth, Plymouth, Bolton, Hull and Newcastle-upon-Tyne; and from whooping-cough in Derby, Salford and Gateshead. The mortality from scarlet fever and from "fever" showed no marked excess in any of the large towns. The 80 deaths from diphtheria included 62 in London, 3 in Manchester, 2 in Cardiff, and 2 in Birmingham. Three fatal cases of small-pox were registered in Manchester, 2 in Salford, and 1 each in London, Liverpool, Leicester, Derby, Oldham, Halifax and Leeds; 106 cases of this disease were under treatment in the Metropolitan Asylum Hospitals and 22 in the Highgate Small-pox Hospital on Saturday last. The number of scarlet fever patients in the Metropolitan Asylum Hospitals and in the London Fever Hospital at the end of the week was 2513, against 2774, 2688 and 2580 on the preceding three Saturdays; 257 new cases were admitted during the week, against 250 and 255 in the previous two weeks. The deaths referred to diseases of the respiratory organs in London, which had declined from 984 to 452 in the preceding four weeks, further fell to 377 last week, and were 93 below the corrected average. The causes of 90, or 2·3 per cent., of the deaths in the thirty-three towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Croydon, Cardiff, Bolton, Oldham, Blackburn and in eight other smaller towns; the largest proportions of uncertified deaths were registered in West Ham, Brighton, Birmingham, Halifax and Hull

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had declined in the preceding four weeks from 28·5 to 21·9 per 1000, rose again to 24·2 during the week ending Feb. 11th, and exceeded by 4·3 per 1000 the mean rate during the same period in thirty-three of the largest English towns. The rates in the eight Scotch towns ranged from 16·6 in Greenock and 16·8 in Leith to 26·6 in Glasgow and 29·8 in Dundee. The 682 deaths in these towns included 51 which were referred to measles, 13 to scarlet fever, 13 to whooping-cough, 12 to diarrhœa, 9 to diphtheria, 6 to "fever," and 5 to small-pox. In all, 109 deaths resulted from these principal zymotic diseases, against 113 and 93 in the preceding two weeks. These 109 deaths were equal to an annual rate of 3·9 per 1000, which exceeded by 2·1 the mean rate last week from the same diseases in the thirty-three large English towns. The fatal cases of measles, which had been 68 and 41 in the preceding two weeks, rose again to 51 last week, of which 19 occurred in Glasgow, 16 in Dundee and 10 in Edinburgh. The deaths referred to scarlet fever, which had been 12, 9 and 10 in the previous three weeks, further rose to 13 last week and included 10 in Glasgow and 2 in Edinburgh. The 13 fatal cases of whooping-cough were within one of the number in the preceding week and included 12 in Glasgow. The deaths from diphtheria, which had increased from 3 to 11 in the preceding three weeks, declined to 9 last week, of which 7 occurred in Glasgow. Of the 6 fatal cases of "fever," 3 were recorded in Leith; and the 5 deaths from small-pox included 4 in Glasgow and 1 in Perth. The deaths referred to diseases of the respiratory organs in these towns, which had been 168 and 159 in the preceding two weeks, rose again to 182 last week and exceeded by 36 the number in the corresponding week of last year. The causes of 52, or nearly 8 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had declined from 34·6 to 25·1 per 1000 in the preceding four weeks, further fell to 24·3 during the week ending Feb. 11th. During the first six weeks of the current quarter the death-rate in the city averaged 29·2 per 1000, against 24·6 in London and 24·9 in Edinburgh. The 163 deaths in Dublin during the week under notice showed a decline of 5 from the number in the preceding week, and included 4 which were referred to "fever," 1 to measles, 1 to scarlet fever, 1 to diarrhœa, and not one either to small-pox, diphtheria or whooping-cough. In all, 7 deaths resulted from these principal zymotic diseases, equal to an annual rate of 1·0 per 1000, the zymotic death-rate during the same period being 1·9 in London and 2·9 in Edinburgh. The deaths referred to different forms of "fever," which had been 11, 6 and 8 in the preceding three weeks, declined to 4 last week, a lower number than in any week since the end of last year. The fatal case of diphtheria was the first recorded in the city since the middle of December last. The 163 deaths registered in Dublin last week included 35 of infants under one year of age and 38 of persons aged upwards of sixty years; the deaths of infants considerably exceeded those recorded in any recent week, whilst those of elderly persons showed a further decline. Three inquest cases and 5 deaths from violence were registered; and 66, or more than a third, of the deaths occurred in public institutions. The causes of 16, or nearly 10 per cent., of the deaths in the city last week were not certified.

THE SERVICES.

MOVEMENTS IN THE MEDICAL STAFF.

BRIGADE-SURGEON-LIEUTENANT-COLONEL MACARTNEY has arrived at Malta from Gibraltar to complete a tour of foreign service. Brigade-Surgeon-Lieutenant-Colonel Greenhill has arrived home from India to retire. The following officers have arrived from India in the *Euphrates*:—Surgeon-Captains Brown, Manders and Durant. Surgeon-Captain Nelis has embarked in the above troopship, for a tour of service in India. Surgeon-Captain Lane has been posted to the North British district. Surgeon-Captain Morris has returned to Netley from Ceylon, where he proceeded in charge of drafts.

ARMY MEDICAL STAFF.

Surgeon-Lieutenant-Colonel Henry Waghorn, from half-pay, is placed on retired pay; Surgeon-Lieutenant-Colonel William Finlay retires on retired pay. The undermentioned Surgeons on probation to be Surgeon-Lieutenants:—Frederick Meredyth Mangan, Charles Edward Pollock, William James Taylor, M.B., Bell Wilmott Longhurst, John Herbert Rivers, Henry Arthur Berryman, Ferberd Richard Buswell, Frank Albert Symons, M.B., John Henry Farmer and Charles Thomas Samman.

INDIA AND THE INDIAN MEDICAL SERVICE.

The following appointments have been made:—7th Bengal Cavalry: Surgeon-Captain A. G. Hendley, to the Officiating Medical Charge of the Regiment, vice Surgeon-Captain J. M. Crawford. 13th Bengal Lancers: Surgeon-Captain C. H. Bedford to the Officiating Medical Charge of the Regiment, vice Surgeon-Major W. Conry. Surgeon-Captain A. H. Nott, Officiating Civil Surgeon, Birbhum, to act as Civil Surgeon of Hazaribagh. Brigade-Surgeon-Lieutenant-Colonel D. F. Bateman, I.M.S., Principal Medical Storekeeper, Madras, to officiate, with the temporary rank of Surgeon-Colonel, as Principal Medical Officer of a District in the Madras Command, during the absence of Surgeon-Colonel W. H. Roberts, on leave. Surgeon-Major T. B. Moffit to have Medical Charge of the Barrackpore Subdivision, in addition to his own military duties, vice Surgeon-Captain G. B. French. Surgeon-Major R. Pemberton is appointed to act as Civil Surgeon, Cochin, during the employment of Surgeon-Major J. W. Evans on other duty. Surgeon-Colonel F. B. Scott, M.D., C.M.G., Medical Staff, is brought on the Administrative Medical Staff of the Army, vice Surgeon-Colonel A. Allan, deceased. Surgeon-Captain L. F. Childe and Surgeon-Captain T. D. C. Barry have respectively delivered over and received Charge of the office of Professor of Chemistry at the Elphinstone College, Bombay. Leave has been granted to Surgeon-Lieutenant-Colonel F. C. Nicholson, M.B., Civil Surgeon, Patna (p. a.), for 1 year and 324 days; and to Surgeon-Lieutenant-Colonel W. A. Gilligan, I.M.S. (m. c.), for six months.

NAVAL MEDICAL SERVICE.

The following appointments are announced:—Fleet Surgeons: Henry T. Cox to the *Royal Arthur* (dated March 2nd, 1893); Alfred T. Corrie to the *Excellent* (dated Feb. 19th, 1893). Staff-Surgeons: James W. T. S. Kellard to the *Malabar* and Leonard K. Kellett to the *Invincible* (both dated Feb. 19th, 1893). Surgeons: Geo. H. H. Symonds and Robley H. J. Browne to the *Royal Arthur*; James L. Smith to the *Jackal* and Thomas E. Honey to the *Wasp*ite (both dated March 2nd, 1893); Edward R. D. Fasken to the *Wye* and Alexander G. Andrews to the *Duke of Wellington* (both dated Feb. 11th, 1893). Surgeon and Agent: Cecil A. P. Osburne, at Hythe (dated Feb. 11th, 1893).

VOLUNTEER CORPS.

Rifle: 5th Volunteer Battalion, the Royal Scots (Lothian Regiment): Surgeon-Lieutenant W. Young, M.B., to be Surgeon-Captain.—2nd (the Weald of Kent) Volunteer Battalion, the Buffs (East Kent Regiment): Surgeon-Lieutenant A. S. Wood resigns his commission; also is permitted to retain his rank and to continue to wear the uniform of the Battalion on his retirement.—7th (Clackmannan and Kinross) Volunteer Battalion, Princess Louise's (Argyll and Sutherland Highlanders): Surgeon-Lieutenant T. Milne, M.D., to be Surgeon-Captain.

DEPUTY-SURGEON-GENERAL E. W. YOUNG, M.D.

Deputy-Surgeon-General Young, late King's Royal Rifle Corps, who died on Feb. 1st at Southsea, served throughout the Eastern Campaign of 1854–55, including the battles of Alma, Balaklava and Inkerman, the siege and fall of Sebastopol, and the expedition to Kertch, receiving the medal with four clasps and Turkish medal. He also served in the Indian Campaign of 1858–59, and with the 1st Battalion 60th Rifles on the Red River Expedition of 1870.

HONORARY SURGEONS TO THE QUEEN.

We have to congratulate Inspector-General of Hospitals and Fleets James John Louis Donnet, M.D., who has been appointed Honorary Physician to Her Majesty in the vacancy created by the decease of Inspector-General David Lloyd Morgan; and Inspector-General James Nicholas Dick, C.B., Director-General of the Medical Department of the Navy, who has been appointed Honorary Surgeon to Her Majesty in the vacancy created by the appointment of Inspector-General

James John Louis Donnet to be Honorary Physician to Her Majesty.

THE TRANSPORT OF TROOPS.

We are glad to notice that Mr. Campbell-Bannerman's attention has been called to the discomforts experienced by the Royal Scots Fusiliers during their short voyage on board H.M.'s ship *Assistance*, to which we recently adverted. The War Minister frankly admitted that great discomfort was undoubtedly experienced, but it was in great part attributable to the exceptionally bad weather, the time occupied in the voyage, and the number of men who were prostrated by sea-sickness. There was no overcrowding, according to the estimated accommodation, but he was bound to allow that complaints had been received in regard to this vessel on which he proposed to confer with the Admiralty. We can only repeat what we have already pointed out, that as young soldiers are very frequently bad sailors, and as the short voyages made by these coast transports are often exceptionally rough, it is extremely desirable, in the interest of the public service, that the accommodation and arrangements on board should be made as good as practicable.

EGYPT.

Now that additions have been made to the army of occupation in Egypt, the total strength of the force in that country will amount to 6000 and upwards. We trust that arrangements will be made for accommodating as many of the men as practicable in suitable positions outside the large towns, and that ample space and ventilation will be afforded to all the troops in barracks during the ensuing hot weather. Our attention has been called to the fact that there are some excellent sites for encampments at a few miles' distance from Cairo, on which it is to be regretted that huts or buildings of a temporary character were not erected years ago. The occupation of some of the barracks at Abbaseyeh, where the troops could have ample space and ventilation, would probably be preferable to quartering them in some of the barracks in Cairo itself. We need scarcely add that every effort should also be made at Alexandria to diminish the amount of disease which unhappily prevails in the garrison there year after year. The Egyptian Government accounts for the past year continue to show a very satisfactory surplus, notwithstanding the large remissions of taxation that have taken place during the past three years. The general improvement in the Customs and Railway receipts and in the yield of the indirect taxes is evidence of the prosperity of the country. A large saving has been effected by the conversion of the debt, and large reserve funds have been created under our financial administration of the country; consequently there does not appear to be any reason why some outlay should not be incurred in prosecuting public sanitary works and in providing the European garrison with wholesome and healthy accommodation.

EXAMINATIONS FOR SANDHURST.

On the last occasion of the medical and literary examinations for admission to the Royal Military College, Sandhurst, the number of candidates was very large. It is understood that, in future, changes will be made in the conduct of these examinations. Instead of London being the only place at which they are held, as has been the practice hitherto, the literary part of the examination will be held in the metropolis and at several other large towns also, and only those candidates who have been successful in this portion of the examination will be subjected to the physical or medical examination as to their fitness for Her Majesty's service. It is thought that in this way the candidates will be spared expense and inconvenience and that the medical officers will be relieved of much unnecessary labour.

THE RECRUITING FOR 1892.

According to an article in the *Standard*, *apropos* of the forthcoming Annual Report of the Inspector-General of Recruiting, there would appear to be no doubt that, all things considered, the recruiting for 1892 has been more satisfactory than for any year since 1885. It is stated that the number of recruits enlisted in 1892 exceeds 41,000. Of the total number not more than 2500 enlisted for twelve years' service. About one-third probably of the men, however, are "specially enlisted" because they do not come up to the prescribed standards of measurement. Many causes have contributed to this success, the chief of which is probably the greatly increased prospect of civil employment after leaving the colours. The infantry is the only arm of the British Army which is not above its establishment, and it is in this direction that the conditions of service require remedial measures. The Secretary for War will shortly have to discuss the subject of the report of Lord Wantage's Committee, and we shall then learn which of the number of measures recommended in that report the present Government are inclined to adopt.

Correspondence.

"Audi alteram partem."

"THE PROOF THAT CHLOROFORM HAS NO DIRECT ACTION ON THE HEART."

To the Editors of THE LANCET.

SIRS,—It seems to us desirable, after reading the first paragraph of Surgeon-Lieutenant-Colonel Lawrie's article in THE LANCET of Feb. 11th, to briefly state the circumstances under which we carried out an investigation into the action of chloroform. In undertaking to write a report on the work of the Second Hyderabad Chloroform Commission we accepted the assistance of the Nizam's Government, and we distinctly understood that we were engaged in a purely scientific investigation and that the results of the investigation would be given to the medical world, whatever might be the conclusions at which we arrived. Our experiments were carried out, and we sent a draft report to Surgeon-Lieutenant-Colonel Lawrie in August, 1892, in perfect good faith, for the purpose of obtaining his and Surgeon-Major Bomford's criticisms before publication. He acknowledged its receipt and promised to send us back the draft report "in a mail or two" with these criticisms, so that we might modify it as we thought fit. Up to the present we have not received it. A telegram, dated Hyderabad, Oct. 9th, however, appeared in *The Times*, asserting that Surgeon-Lieutenant-Colonel Lawrie had settled the controversy as to the action of chloroform by means of cross-circulation experiments (a method devised by us), and we heard incidentally from Dr. Lauder Brunton that a copy of our draft report had been received in London from India, but he was not at liberty to say to whom it had been sent or what was to be done with it. Shortly afterwards Surgeon-Major Bomford came over to England and we had the opportunity of meeting him in December last. He had not brought our draft report back with him, but as he had read it, and we fortunately had kept a copy, we were enabled to discuss it with him and to modify it in a few particulars in accordance with information he gave us on some points in the Commission's report and on Surgeon-Lieutenant-Colonel Lawrie's method of chloroform administration.

Seeing, then, that a copy of our draft report had been sent to some unknown person in London instead of being returned to us as promised, and also that we had obtained from Surgeon-Major Bomford all the criticism he had to offer, it seemed to us clear that we were not likely to receive any further criticism from Hyderabad, so we determined to wait no longer and accordingly published our report. We are therefore surprised to find Surgeon-Lieutenant-Colonel Lawrie quoting from our draft report without our permission. We distinctly understood from the commencement of the work that the publication of the report was in our hands, and Surgeon-Lieutenant-Colonel Lawrie, in acknowledging the receipt of the draft report, said: "We shall not attempt to take any advantage of you in the way of publication." We leave the medical world to judge how far Surgeon-Lieutenant-Colonel Lawrie has at heart the desire to know the truth about the action of chloroform when, if we judge from his behaviour to us with regard to publication, and from the final sentences of the first paragraph of his present communication, it appears that he has done his best to suppress an investigation, initiated by himself, because its conclusions are adverse to his preconceived views. We are, Sirs, yours truly,

W. H. GASKELL,
LEWIS E. SHORE.

Cambridge, Feb. 14th, 1893.

*** We think it is but fair to Surgeon-Lieutenant-Colonel Lawrie to state that the copy of the draft report alluded to in Drs. Gaskell and Shore's letter was sent by him to us in October last, and is still in our possession. We understood, however, that it was not sent to us for publication.—ED. L.

"SENSITIVENESS OF THE PERITONEUM."

To the Editors of THE LANCET.

SIRS,—As no circular letter has reached me from Mr. Lawson Tait's secretary on the subject of the "Sensitiveness of the Peritoneum," I may infer that as far as Birmingham is concerned I am not one of those "whose names are familiar in connexion with abdominal work." Nevertheless I have had the experience of a considerable number of years, extending to hundreds of cases of ordinary abdominal section, and probably a unique experience amongst "the surgeons of Great Britain and Ireland" in vaginal hysterectomy; and I shall feel obliged to you for the opportunity of expressing my opinion on the subject under discussion. I should like also to call attention to one point in particular that has arisen incidentally in the debate on this subject and in vivisection. Many years ago, in one of my first cases of oöphorectomy, which I reported at the time in a paper read at the Manchester Medical Society, protrusion of the intestine occurred owing to the snapping of bad material employed in suturing the abdominal wound. My attention was called to the case a day or two before I would otherwise have interfered with the dressings owing to the fact that these were observed by the nurse to be stained with red serum. I undid the dressings and, to my horror, found a large knuckle of intestine protruding and adhering to the lint, and it required a good deal of swabbing and picking and other manipulations to clear the bowel from the dressings. To my surprise the patient hardly winced, and it was only after putting the bowel back with a soft sponge and proceeding to introduce silk sutures through the abdominal skin that she made any outcry. The patient recovered without any further incident. More recently, owing to an omission on the part of a nurse, I have had to deal with a case of obtrusion of intestines, and I dealt with the "accident" in the same way, without waiting for the administration of an anæsthetic.

It seems to me to be the external wound that is painful. This is not a mere impression, but is an opinion formed by observation in dealing with the wound in cases in which a drainage-tube had been prematurely removed or in which a drainage-tube had not been introduced at the time of operation. This opinion is supported by my experience of vaginal hysterectomy. In my first thirty to forty cases I did not suture the chasm left in the floor of the pelvis by the removal of the uterus. The intestines were sometimes pushed very low in the pelvis by the straining permitted by imperfect administration of the anæsthetic, and sometimes the bowel and omentum were dragged down in removing the sponges. In the first dressing of these early cases the bowel had to be supported on a pad of iodoform gauze, and every successive dressing entailed more or less interference with the peritoneum and intestine. In these cases the element of interference with a painful external wound was eliminated. After the introduction of the vaginal specula and the full exposure of the wound in the pelvis—a proceeding which was always painful the first few times—the manipulation of the pelvic contents could be carried out with little or no complaint from the patient. With suitable forceps the intestine and omentum could, when necessary, be swabbed with pledgets of cotton wool and even pushed further up, whilst the patient appeared to be unconscious of the proceedings. If, however, the ligatures on the broad ligament were pulled upon, there was immediately some expression of suffering.

There is a class of phenomenon in connexion with the introduction of the blandest of fluids or of the blood of the patient into the peritoneal cavity, which Mr. Lawson Tait refers to, about which I have formed no theory, and which I do not understand. In flushing the peritoneal cavity I use a solution of common salt, which is less irritating, and for other reasons more serviceable, than boiled water; yet at the first or second dressing when a drainage-tube is used the introduction of a small quantity of the solution (temperature 100° F.) in order to keep effused blood in solution often gives rise to severe pain. It might be objected here that there is some carelessness about the temperature, but how, then, can we explain the cases in which the patient's own blood, gushing into the peritoneal cavity—as, for example, when rupture occurs in tubal pregnancy, gives rise to intense pain? In one case, otherwise uncomplicated, on which I operated, the patient after her recovery described the onset very graphically. The pain was so sudden and so agonising all over the abdomen that she could not help the practitioner who first saw her in localising the site of its origin, and, in fact, to some extent she misled him. If space will permit, will you now allow me to refer to a matter which I expected some one would have called attention to ere now in connexion either with the present or a recent controversy? In his paper in THE LANCET of Jan. 21st Mr. Lawson Tait again gave expression to an eccentric opinion: "I think the facts as they are substantiated by many of my correspondents show that here as elsewhere it is perfectly impossible to accept the conclusions derived from experiments on animals as applicable to man." He also added: "It is probable also that it is dangerous to accept the conclusions derived from one human patient as applicable to another of the same kind." If such a position were tenable there would be an end to all experimental research in biology, and even biological science would be impossible. Might a controversialist in a difficulty with the chemists not as well hint at his want of confidence in the regular behaviour of the atomic weights of the elements? I think Mr. Lawson Tait should give some reasonable explanation of the statements which he recently published in reference to his attitude in the vivisection question and some passages in his most recent bound book. He threw over the "women and clergymen" in alleging that he did not object to experimental research in biology on sentimental grounds, but because inferences could not be drawn from such work which could be of any value as applicable to man; and yet if anyone interested will turn to "Diseases of Women and Abdominal Surgery," vol. i., he will find the chapter on the Theory of Menstruation curious reading in the light of recent statements by the author, Mr. Lawson Tait. He draws largely upon two papers contributed to the Transactions of the British Gynæcological Society by Mr. Bland Sutton and Dr. Arthur W. Johnstone of Kentucky, and he refers to them in terms of extravagant praise. They are both "brilliant researches," and Dr. Johnstone's becomes "the most brilliant contribution to this subject which this century has seen" (p. 326). But will it be believed by your readers who may be unfamiliar with this class of subject that the essay so characterised by Mr. Lawson Tait depended for some of its "brilliant" qualities upon "the researches of Johnstone on the wombs of animals" (p. 324)? As for Mr. Bland Sutton's paper, read at the same meeting of the British Gynæcological Society, in 1886, in which Dr. Johnstone's was introduced, it bore the short and uncompromising title of "Menstruation in Monkeys." There may be some simple natural explanation of the praise of these two essays and the latest modification of opinion on the part of the professional champion of the anti-vivisectionists, and, if so, it will doubtless be forthcoming; but, *primâ facie*, the inconsistency appears more suitable to the field of contemporary politics than to that of biological science.

I am, Sirs, yours truly,

Manchester, Jan. 30th, 1893. W. J. SINCLAIR.

THYMOL AS AN ANTHELMINTIC IN FILARIASIS.

To the Editors of THE LANCET.

SIRS,—Surgeon-Lieutenant-Colonel E. Lawrie in THE LANCET of Nov. 26th reiterates his belief, founded on the experience of two cases,[1] in the power of thymol to cure chyluria and to cause the disappearance of filaria sanguinis hominis nocturna from the blood, contrary to the experience of Surgeon-Lieutenant-Colonel A. Crombie[2] in the case of the same parasite and my own in the case of the closely allied parasites, filaria sanguinis hominis diurna and perstans.[3] He further states that Surgeon-Captain P. Hehir has also succeeded with the drug. Should further experience confirm his results Surgeon-Lieutenant-Colonel Lawrie is to be congratulated on a therapeutical discovery of the first magnitude, as those who have studied the subject of filariasis will readily understand. Impressed with the importance of the matter I took an early opportunity of repeating Surgeon-Lieutenant-Colonel Lawrie's experiment, this time in a case of filaria nocturna infection. Possibly, I thought, my failure in the case of filaria diurna and filaria perstans might have been owing to insusceptibility to the drug in these specifically different parasites. My experiment was made in the following case:—

A man aged twenty-one, born in India of English parents,

[1] THE LANCET, Feb. 14th, 1891.
[2] Ibid., Aug. 13th, 1892. [3] Ibid., Oct. 1st, 1892.

had never been out of India when he joined the army five years ago. He passed a very stringent medical examination and was pronounced healthy in every respect. Eighteen months later he discovered that he had a swelling in the left groin. This continuing to increase and interfering with his efficiency as a soldier, he took his discharge in May, 1891, and came to London for treatment. He was a patient for some time in the London Hospital, where I saw him along with Dr. S. Mackenzie. There was a large swelling the size of the fist occupying nearly the whole of Scarpa's triangle on the left side. It was prominent, lobulated, soft, painless, obscurely fluctuating, non-adherent to the skin, but not movable on the deep structures. On lying down the swelling somewhat subsided, and when in this position firm pressure with the palm of the hand caused it slowly to disappear. On standing up, although pressure was maintained, the swelling gradually reappeared. There was no impulse on coughing. A similar but much smaller swelling existed in a corresponding position on the right side; there was also some obscure fluctuation in the left tunica vaginalis. On thrusting a hypodermic needle into the swelling on the left side a pinkish-white, coagulating fluid escaped through the needle in drops and several drachms of the fluid were quickly collected. On placing a little of it under the microscope living embryo filariæ were found. Puncture of the left tunica vaginalis gave vent to a similar fluid in which filariæ embryos were found in very great abundance. When examined during the night the patient's blood was found to contain filariæ. He was evidently the subject of that form of varicose groin glands which is so frequently associated with chyluria, lymph-scrotum, chylous dropsy of the tunica vaginalis and filariæ in the blood. On the evening of Nov. 26th, 1892, I examined his blood along with Dr. Wethered. In one slide, containing about one drop of blood, after staining with weak fuchsin and decolourising with weak acetic acid, we counted 413 embryo filariæ nocturnæ. On the 27th he began to take thymol in four grain doses four times a day. He continued to take the drug till Jan. 16th. It did not affect his health or comfort in any way. On Dec. 6th a small slide of blood drawn at 9 P.M. contained 120 filariæ; another drawn at the same hour on Dec. 16th contained the parasite in abundance. A full slide examined on Dec. 29th contained 359, a fourth slide drawn on Jan. 16th, 1893, and which Dr. Wethered examined along with me, contained 327 filariæ, and another drawn at the same time contained 308. In slides of unstained blood the parasites were observed to be active and apparently in no way affected by the long course of thymol. In view of the importance of the subject Surgeon-Lieutenant-Colonel Lawrie ought to make an extensive series of experiments by which he might either corroborate or upset his statements in regard to the efficacy of thymol in filariasis. Here opportunities are of somewhat rare occurrence, but in India it would be an easy matter to multiply his experiments indefinitely.

I am, Sirs, yours faithfully,

PATRICK MANSON, M.B., M.R.C.P., LL.D.

Feb. 13th, 1893.

UNQUALIFIED PRACTICE.

To the Editors of THE LANCET.

SIRS,—Your own correspondent at Manchester, at the end of his report on the scandalous case of "unqualified medical practice" at Manchester in THE LANCET of Feb. 4th, remarks: "If a druggist without medical diploma is to be permitted to conduct a large medical practice, as this man coolly boasts to have done; and if in the course of his trade he improperly attends small-pox cases and thus prevents their notification and isolation by the constituted authorities, it is high time that the Notification Act, the Medical Act, or some other statute were so strengthened as to reach such a case." In your annotation you endorse his remarks, and every medical man in the kingdom will do the same.

There is no question as to the evils of unqualified practice in all its forms, nor can it be denied that the evil is as widespread as it is unchecked. No existing law sufficiently meets the case; the Apothecaries Act is too cumbrous and it would not be fair to expect the Society to act the policeman for the whole profession. The various medical Acts deliberately avoid the issue in question. So far I venture to believe the majority of medical men will be in agreement with me. A great public and professional evil is admitted and the law of the land is not able practically to deal with this evil. It follows that the law requires altering, and the real question begins as to how it should be done and by whom the Legislature should be approached.

Putting on one side for a moment the public interests, the general practitioners scattered throughout the empire are undoubtedly the chief sufferers, more especially the poorer ones in our great centres. On the face of it, the general body of practitioners are too scattered and possess too little interest in high quarters to combine to carry any Bill through Parliament. The University Senates and the Councils of the Royal Colleges are formed of men who do not have the evil brought under their special notice, and consequently can afford to view the matter without emotion. Moreover, they are not noted for working harmoniously together, and they also are scattered up and down the kingdom. There remains the General Medical Council for Education and Registration. This Council is composed so as to represent the Crown and all the divisions of the medical community. The members are in touch with the Privy Council and in many instances are personally acquainted with our great politicians and law-makers. The voice of an unknown person like myself speaking in the wilderness is not likely to penetrate to the ears of these fathers of the profession. It cannot be doubted that it is within the power of the General Medical Council to formulate an amendment to the medical Acts wherein it should be enacted that it was illegal for unqualified persons to prescribe for or treat patients for their own pecuniary profit and to mete out prompt punishment for those who broke the law. These gentlemen alone have the power to approach with any chance of success the government of the day, and as we have for the first time a member of our own profession (Sir Walter Foster) in high office, it would be a graceful act for the Medical Council to make the attempt and show they were alive to the need of pushing outside their present boundaries not only in the interests of the public, but in the interests of the great profession they represent. It is with the hope of inducing the Editors of THE LANCET to use their power in influencing the members of the General Medical Council that I have ventured to write again on this well-worn theme and to ask you to point out any alternative method of procedure by which this much-needed change in the laws could be accomplished.

I am, Sirs, yours very truly,

Margate, Feb. 7th, 1893. BERTRAM THORNTON.

BRITISH INSTITUTE OF PREVENTIVE MEDICINE.

To the Editors of THE LANCET.

SIRS,—The skeleton report of a meeting held here on the 2nd inst. in support of the establishment of this institution so incompletely represents what I intended to convey that I must ask you to let me briefly restate my views. They are a matter of such little importance that I am surprised emphasis is laid upon the fact that I left the meeting at all, and still more when it is stated that I left at the commencement of the discussion. I left when I thought the discussion had finished, for there were loud cries of "Vote, vote!" some time before I left; and to be present at all I disarranged my appointments and incurred the discomfort of a midnight journey, because I knew very well that the meeting had an object carefully concealed and quite beyond its avowed scope. What I did say was that I objected altogether to the past record of experiments on animals as delusive; that bacteriological research was a new thing since my student days; that it had unquestionably benefited the brewer and the grower of grapes; that it had possibly conferred benefit in the cases of some diseases of animals; but that in its applications to man I could not admit in a single instance the word "proved" so lavishly used by Dr. Ruffer. I therefore yielded to the resolution a reluctant assent; I certainly did not use the words "fully assented."

Thus far I went because I really regarded Dr. Ruffer's proposals as reasonable and such as should not be hindered; but it is clear, from Mr. Victor Horsley's attitude, I was upon this point quite mistaken. I have no intention of continuing this discussion, but I should be glad if you would allow me to put myself right on one point. A vast number of illustrations taken from surgical advance have been quoted as illustrations of the value of experiments on animals, and they have been shown, one and all, to be mistaken. I have taken some part in this argument; but between that attitude and a plea for the total suppression of experiments on animals there is a very wide difference, and if such experiments can

be justified I am ready to overcome my repugnance to them at once.

I can have no sympathy with those who talk such nonsense as to say that men of science ought not to be placed under restrictive legislation. My answer is at once to point to the Anatomy Act and to say that honest anatomists do not object to it, and that criminal anatomists brought it about. Dr. Klein's evidence alone was enough to convince any reasonable man that restrictive legislation in the matter of vivisection was urgently needed.

I am, Sirs, yours truly,

Birmingham, Feb. 17th, 1893. LAWSON TAIT.

ARE DISEASE GERMS IN MILK DESTROYED BY BOILING?

To the Editors of THE LANCET.

SIRS,—In the early part of 1891 I wrote a letter to THE LANCET saying it was by no means certain that disease germs in milk were destroyed by ordinary boiling, and quoted Mr. Watson Cheyne's opinion that, to make sure, the milk required to be boiled for from ten to fifteen minutes on three successive days. Dr. Fayer, in the *L'Année Médicale de Caen*, now comes forward and states that he does not believe that the germs are destroyed by boiling. The tubercle bacillus is killed only at a temperature of 110° to 115° C. Experiments made at his laboratory at the Physiological Institute show that the degree of ebullition never exceeds 100° C. Children, he says, die from enteritis, and boiled milk, it is to be feared, might encourage this affection. He considers it hurtful to children. Another matter about which there is difference of opinion is whether tuberculosis can be conveyed to human beings by means of milk from tuberculous cows. Owing to a report, it would appear, from the Veterinary Inspectors, the Public Control Committee of the London County Council have come to the conclusion that such milk must cause serious mischief to health; but from laboratory experiments recently carried out an opinion has been given that it does not cause tuberculosis. Surely such important matters as these should not be allowed to remain any longer in doubt. I am, Sirs, yours truly,

Surbiton, Feb. 14th, 1893. F. P. ATKINSON.

THE ETHICS OF OPIUM.

To the Editors of THE LANCET.

SIRS,—Having read Dr. Mouat's article in last week's issue of THE LANCET, I see no reason for continuing the controversy. My single motive for previously writing at such length was to show how baseless was the charge which Dr. Mouat had brought against the Anti-opium Circular of December, 1891, of being "a most mendacious document." I have, I believe, shown ample reason for the statements of the Circular, bringing forward a variety of facts in connexion with India with which Dr. Mouat himself was evidently unacquainted, and otherwise showing abundant cause why at least an expression which conveyed a direct insult to four of his professional brethren should be at once withdrawn. I had hoped that one who professes so great a regard for the courtesies of discussion as Dr. Mouat does would have taken this course, and until he does so I have nothing more to say to him. I am, Sirs, yours truly,

JAMES L. MAXWELL, M.D.

Highbury-park, N., Feb. 14th, 1893.

THE CONFERENCE ON CHOLERA IN ST. PETERSBURG.

(FROM OUR SPECIAL CORRESPONDENT.)

(*Continued from p. 107.*)

THE reports of the proceedings of this Conference appear but slowly, and it will be some time yet before a full account of the sittings will be published. In the meantime, it appears from conversations with members of the Conference that the general results have been quite satisfactory, and in some respects even more so than had been anticipated. The Conference appears to have been carefully organised to carry out the object with which it met. The questions formulated by the earlier general meetings of the members have been fully discussed by the commissions and subcommissions and their conclusions have again been presented to the later general meetings for ratification and approval. As stated before, the commissions have held their discussions from ten till three daily, and even in some cases have renewed them after the general meetings of the Conference (held at seven o'clock each evening) and prolonged them far into the night. In this way, during the week devoted to the Conference, all the important practical questions have been thoroughly debated by bodies of medical men who may be considered as experts on the particular point submitted to them. Thus, one sub-commission, consisting entirely of physicians attached to railways, discussed the measures that have been and should be taken on the railway lines throughout the empire to prevent the introduction or to control the spread of cholera by this means of communication. A second sub-commission was devoted to the discussion of the question of quarantine. These two subcommissions together formed the Commission constituted to decide the points raised in Dr. Tolstoi's paper on Precautionary Measures directed against the Dissemination of Cholera.[1]

Having spoken above of the practical questions raised by the Conference, it may now be added that all the questions discussed were of a practical character. The many theoretical aspects of the subject do not appear to have come under consideration, or, if considered at all, have been treated only as incidental to the decision of some point of practice. The treatment of the disease, as will be shown later, has been briefly reviewed.

The question of quarantine, both by sea and land, was fully debated and certain conclusions were arrived at. Dr. Tolstoi, in introducing the general discussion on this subject, pointed out that some confusion existed as to the meaning of quarantine, the word being often loosely applied to places where detention was not practised, but where merely examination and disinfection were carried out. He would limit the use of the word to those points where detention of the healthy over the period of incubation of a threatening epidemic disease is practised; whilst those points where the examination and disinfection of luggage, the inspection of passengers and the detention of sick alone are carried out should be known, as heretofore, as "observation points." The net result of the discussion on this subject has been that the Conference condemned the principle of quarantine as thus defined, and recommended the substitution for it, alike on sea and land frontiers and on the internal lines of communication, of a system of inspection, disinfection and isolation of suspicious cases.

A paper was read by Dr. Uspenski on the Measures taken on Railways, a second by Dr. Sakharof on the Measures taken on Waterways, and a third by Dr. Yershof on Certain Practical Points in the Medical and Sanitary Services in Districts threatened by Cholera. These papers are not yet in print, but as they led to lively discussions it may be of interest to give the list of points submitted by one of the writers to be debated in committee, more particularly as they well illustrate the thoroughly practical character of the Conference. Dr. Yershof, in concluding his paper, formulated the following questions: 1. What number of medical men are necessary in a given area in relation to the number of inhabitants and taking into consideration the intensity and character of the epidemic? 2. What number of feldschars and attendants (nurses &c.) are necessary for such medical men? 3. Under what conditions are dispensaries necessary and what type should they follow? 4. The carriage of the sick. 5. The conditions under which the sick may be treated at home. 6. To what extent are the rules for disinfection, worked out by the Medical Council, capable of being officially carried out, more particularly in villages and country places? 7. To what class of person should be entrusted the carrying out of disinfection? 8. What means have appeared most suitable for disinfection? 9. To what extent has the disinfection of persons arriving from a cholera-stricken locality appeared practicable? 10. To what extent is it possible to substitute the burning of articles for their disinfection, and how could this be organised? 11. By what persons should in future the choice of members of the sanitary service be made? 12. How many such members should be trained in each district? 13. In what sort of medical institution should they undergo

[1] Vide THE LANCET, Jan. 14th.

their training? 14. What payment should they receive during the period of their training? 15. What outlay in general would be required for organising such courses of training? 16. What payment should the trained members receive?

The first ten of these questions were discussed in committee; the last six, relating to the sanitary service, were discussed at the third general meeting of the Conference. Representatives of the governments of Orel, Radom, Yaroslav, Simbirsk, Kursk, Samara and Bessarabia recounted their experiences in their respective districts in the training of Sisters of Mercy and disinfection. They were unanimous in testifying to the value of even the shortest period of training. The period varied from ten days to six weeks, and the instruction was in all cases as practical as possible The candidates received a short course of lectures on the rudiments of anatomy and physiology, and on the general principles of hygiene, nursing and disinfection, and at the same time were in attendance for so many hours each day on the patients in the infectious wards of the hospitals. When the epidemic reached any district there was almost everywhere a temporary reign of panic and disorder; the ordinary hospital accommodation and the sanitary and medical services proved inadequate to deal with the immense number of cases. Then the value of the temporarily trained Sisters of Mercy and of disinfectors was evident. As they were distributed in the villages the panic subsided and the peasants willingly accepted their services. Professor Pavlovski considered that in nursing cholera patients—where constant attention is necessary—women are preferable to male attendants, and many other speakers supported this view. The difficulty of providing medical men and nurses for distant villages was pointed out, and in illustration of this may be quoted the Samara government. Here in one uyezd alone there are 300 villages, separated from each other by an average distance of from thirty to forty versts. Many of these villages were unprovided with hospitals, doctors or even feldschars. The difficulty was, however, met to a great extent; and from the town of Samara from 180 to 200 trained attendants were distributed over the infected villages, where their services were greatly appreciated by the peasants.

In this work of training attendants and disinfectors the Red Cross Society has played the most active part. This Society, founded just twenty-five years ago, has branches in nearly every part of the country. The payment of the Sisters of Mercy and disinfectors was derived from its funds. The scale of payment has varied considerably. Sisters of Mercy received from 15 to 50 roubles per month, the higher figure having been paid in the Yaroslav government, where the inhabitants charged them extortionate prices for food and other articles supplied to them. The disinfectors received from 10 to 15 roubles per month.

At the third general meeting of the Conference the following telegram of congratulation was sent to M. Pasteur on the occasion of his seventieth birthday: "The Conference of Russian physicians who have taken an immediate part in the struggle with the cholera epidemic, and who are met in St. Petersburg from all the ends of Russia, congratulates the illustrious teacher on his seventieth birthday, wishing him many long years of activity devoted to the glory of his beautiful country, to the glory of science of which he is the pride, and of humanity which owes him so much."

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Ancoats Healthy Homes Society.

THE usual monthly meeting of this useful Society was held last week, Mr. Phythian, a member of the City Council, having undertaken to entertain the poor people of Ancoats with a lecture on "Italian Towns in the Middle Ages." The large hall at New Islington was as usual crowded, the audience numbering about 600, all of whom were members of the labouring class. Mr. Phythian, in the course of his lecture, showed pictures of Venice, Florence, Genoa, Pisa and other Italian cities, and spoke about their government, trades, arts and industries, and their relation to each other. He remarked that our own English towns were better in some respects than the foreign cities he had been describing; they were healthier and more convenient, but still they were very far indeed from being healthy enough, and they were dismal and very ugly. He, however, expressed the opinion that Manchester might readily be very much improved if the people themselves would only take an interest in these things and communicate their wishes to their representatives on the city council.

Public Vaccination by Sanitary Authorities.

At the last meeting of the Stretford Local Board the medical officer of health reported the occurrence of a case of small-pox in a populous part of the township, and detailed the steps which had been taken by his advice to prevent further spread of the disease. A member of the board drew attention to the fact that the Moss-side Local Board had recently appointed their medical officer of health as a temporary public vaccinator, and had issued advertisements to the effect that vaccinations would be performed by him at the expense of the Board. On its being suggested that the Stretford Board should take similar action for the purpose of securing the vaccination of the inhabitants of that district, a medical member of the board, who is also the Public Vaccinator, explained that such a course of action would be illegal, and that any moneys expended by the board on vaccination, would probably be surcharged by the auditor, as the guardians of the poor were the sole authority under the Vaccination Acts, and it would be undesirable to interfere with their functions, especially in face of a possible epidemic of small-pox. Eventually the board decided to leave the matter in the hands of the Guardians.

The Small pox Epidemic.

Unfortunately there are, as yet, no good grounds for believing that the epidemic of small-pox, which for some time past has prevailed in and around Manchester, has reached its worst. Although from the returns of the medical officer of health for the city the number of cases reported last week were fewer by twelve than in the week immediately preceding, nevertheless the distribution of the disease over the city area continues to be very wide, and there scarcely seems to be a district of the city which is quite free from infection. I also learn from the same source the sad fact that as time advances the type of the disease becomes progressively more serious, a dozen deaths from small-pox having occurred in Manchester during the last fortnight. Several hæmorrhagic cases have occurred, which have of course proved fatal, and a large proportion of the cases admitted recently have been of the confluent or semi-confluent variety. The small-pox sheds at Monsall are still fully occupied, although they are much less crowded now than they were a fortnight since; for within the last few days an additional pavilion for twenty-four beds has been opened, and fifty of the convalescent patients have been transferred to the "home" at Clayton Vale, which the corporation have recently adapted for the reception of overflow cases from Monsall. The Salford authorities, too, have bestirred themselves to provide hospital accommodation for smallpox cases within their own area instead of sending them to Monsall. Within the last few days smallpox has again broken out in Failsworth, the extra-municipal district, where it will be remembered the first cases occurred, which remaining unreported, led to the first importation of the disease into Manchester. Happily Failsworth has now adopted the Compulsory Notification Act, so that the local medical officer of health receives prompt intimation of the cases as they occur, and as the Monsall authorities still continue to receive any cases that occur in that district it is hoped that this second outbreak has already been satisfactorily dealt with.

The Withington Hospital Site.

The appeal by the Withington Local Board from the decision of Mr. Justice Chitty has been dismissed with costs by the Lords Justices, before whom the case was heard; and the Withington Local Board have intimated that, in face of that decision, they do not feel justified in carrying their appeal to a higher court. So far, therefore, as the Board is concerned, the Corporation of Manchester are now authorised to complete their hospital already partially erected on their own land at Withington. It appears, however, that two private individuals have now brought an action at common law against the Corporation to restrain them from committing a nuisance. The action will be heard before Mr. Justice Chitty this week, and until his decision is given the Corporation will perhaps scarcely feel themselves justified in proceeding to occupy their new hospital.

February 14th.

NORTHERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENT.)

The Fire at the Newcastle Literary and Philosophical Society.

ON the 7th inst. the Literary and Philosophical Society of Newcastle celebrated its centenary by a brilliant *soirée*, and Lord Armstrong delivered an interesting lecture, with experiments, on electricity. All passed off well, but at breakfast the next morning most of our citizens read with amazement that the place had been burnt down. It was not quite so bad as that, however; still, the library has been destroyed either by fire or water, and in some respects the loss is irreparable, as it contained many valuable books, prints and manuscripts, duplicates of which could only be found in the British Museum. The fire, it appeared, arose from some temporary arrangements for heating water for the tea used at the *soirée* and broke out at five o'clock. There was no resident on the premises at the time.

Fleming Memorial Children's Hospital.

The annual report presented at a meeting of Governors of the Fleming Memorial Children's Hospital, Newcastle, states that a larger amount of work has been done than in any previous year since the hospital was established. The number of children—namely, 584—shows an increase of 153 over the number treated in 1891, and 353 over that treated in 1890. The number of operations has risen from 55 in 1890 and 137 in 1891 to 318 in 1892. The average cost of each patient, including all expenses, was £5 10*s.* 1*d.* Through the kindness of Lady Armstrong the out-door department was still carried on in Hanover-square, and there the number of fresh cases has also risen. In addition there were 852 out-patients treated at the Fleming Memorial Hospital. In the report from which this note is extracted there is nothing said about the rate of mortality. It was considered by many as excessive. The drainage and other sanitary defects have been overhauled during the year; the financial state of the hospital is likewise more satisfactory than in the previous year.

Infantile Mortality in the Auckland District.

At the last meeting of the Auckland Sanitary Authority one of the medical officer's reports stated that in his district 466 deaths took place. Of these 180 occurred in children under one year of age, more than half in those under five years, 20 succumbed to measles, and 51 to zymotic diseases.

Middlesbrough.

At the last meeting of the Sanitary Committee of the Middlesbrough authority Dr. Malcomson stated that ten deaths had resulted from pneumonia during the month, and one death was due to influenza, which had been very prevalent in a mild form. During the month eight cases of small-pox had been treated at the Fever Hospital. At a coroner's inquest held at Middlesbrough last week on a child the coroner severely reprimanded the father of the child for having by a series of misstatements seriously imperilled the medical attendant's position and practice; but the doctor, he said, and his locum tenens were entirely free from blame.

A Daring Leap.

Last week a member of a performing company in Newcastle leaped from the parapet of the High Level Bridge, a distance of about 130 feet, to the water. On rising to the surface he struck out for the shore, which he reached in safety. He was, it is stated, "a professor" of swimming. I presume the worst of these feats is that they are apt to be imitated by amateurs, who may not fare so well as "the professor." A few years ago a workman in a state of drunkenness jumped off the bridge for a wager and survived the insane attempt. About thirty years ago a professional swimmer performed the feat in safety.

February 15th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Infectious Diseases Hospital for Leith.

THE plans of this hospital, as generally approved by the subcommittee of the Leith Town Council, are on view in the Council chamber. The plans show five wards, four of which contain eighteen beds each, whilst the fifth is a probationary ward with ten beds. The cubic space allowed for each bed is 2028 ft. The wards are to be heated partly by low-pressure hot-water pipes and partly by fireplaces. There are a disinfecting house, a mortuary and an administrative block, in which there is accommodation for doctors, nurses, servants and other officials. The total cost, including furnishing, is estimated at over £24,690.

Orders by the Board of Supervision to Leith.

The Board of Supervision has issued an order to Leith in virtue of the authority vested in them by Act of Parliament to issue such directions and regulations as they may think fit for the prevention of epidemic or infectious diseases. The order says that whereas directions and regulations extending to the whole of Scotland were issued by the Board on July 21st, 1892, and whereas it is expedient that provision should be made by the local authority for a house-to-house visitation within the burgh of Leith, therefore in virtue of the authority vested in it the Board orders this to be done. Further, it is ordered that whenever it is found that a dwelling-house or other property is a nuisance, in terms of the Act, the local authority shall without delay instruct their officers to carry out the measures set forth in the Board's directions and regulations dated July 21st, 1892, or such other measures as may be required to remove or abate the nuisance. This order is the outcome of a report by the inspecting officer of the Board in which slum property owned by the corporation themselves is dealt with. With one exception, the property is said to be damp, dirty, dark, overcrowded and badly ventilated, and it is recommended that these dwelling-houses should be closed. The report recommends in addition that the sanitary inspector should be provided with a sufficient staff; that the medical officer's department should be reorganised and the medical officer should not engage in private practice; and that the milkshops, lodging-houses and bake-houses should be examined and their owners made to comply with the existing rules and regulations. The Board have pointed out to the local authority that there appears to be an unusually large proportion of insanitary property in the burgh; that in the opinion of those best able to judge there was a probability of cholera assuming an epidemic form in spring, and that therefore it was of prime importance that the local authority of the seaport in most direct communication with continental seaports should be thoroughly prepared to cope with the disease should it unfortunately appear in this country, and it is with these objects in view they have issued the order referred to.

February 14th.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Dublin Hospital Sunday Fund.

THE nineteenth annual meeting of the supporters of this Fund was held last week. The total contributions last year amounted to £4262 10*s.* 5*d.*, being an increase of £279 11*s.* as compared with the previous year. The working expenses came to £260 8*s.* 7*d.*, or 6 46 per cent. on the total collected. The committee, having ascertained that a sum of £4185 was available for distribution and for current expenses during the year 1893, determined to distribute the sum of £4020 among the sixteen participating institutions in consideration of subscriptions received and work done.

Dublin Main Drainage Bill.

A meeting of burgesses of the City of Dublin was held last week at the Mansion House for the purpose of authorising the Corporation and burgesses to raise further moneys by borrowing to carry out the proposed main drainage scheme, and to lay a second line of pipes from the Vartry works to Stillorgan, where the reservoirs are, so as to ensure an uninterrupted supply of water to the city and townships. The necessity for the main drainage scheme goes without saying, and as regards the second line of pipes to the reservoirs, it is urgently wanted, as the line of pipes laid down twenty-five years ago have become narrowed by the deposits from the Vartry, which has seriously reduced the waterway of the pipes, and materially diminished the volume of water sent from the Vartry to the Stillorgan reservoirs. The effect of this is that one of the reservoirs is completely empty and the other less than half full. When the second line of pipes is completed it will be possible to thoroughly cleanse and overhaul the original pipes, and then, with a double or alternative service,

an uninterrupted supply of water to the city will be practically assured. A Bill will be promoted by the corporation for the purpose of borrowing £100,000 to carry out the necessary works, and as the Bill had the support of the late Government and also of the present Chief Secretary and the Local Government Board, it is not probable that it will be opposed at any stage.

Cork District Lunatic Asylum.

During the past year 277 patients were admitted to the asylum, and the daily average number resident was 1076. The total number under treatment was 35 more than in 1891; 103 of the inmates were dischared recovered, 70 improved, 5 not improved and 68 died. The resident medical superintendent refers in his annual report to the great increase in lunacy which has taken place in the county as contrasted with twenty-five years since, although the population has diminished. That lunatics are now more frequently sent to asylums for treatment partly accounts for this increase. Formerly they were only sent in when too dangerous to be at large and in many cases when all hope of recovery had gone. The deaths came to 68, which shows a mortality of 6·3 per cent. on the daily average number resident, and is the lowest on the records of the asylum. Save one case of mild typhoid fever there was no zymotic disease. The new building begun nearly three years since is now approaching completion, and it is probable that it will be available for occupation some time during the present year. It has been constructed to accommodate 420 patients, and this, with the provision in the main building and hospital, will give a total accommodation for about 1320. The numbers in the asylum, on the day the report was presented, were 1100, so that it will not be difficult to fill the vacant beds if care is not taken to keep out chronic and incurable patients. The new building consists mainly of large day-rooms and dormitories, and has been constructed for the accommodation of quiet patients; three of the male wards in the main building will be given over to the female patients, and only 200 beds will be retained for the men, for the treatment of recent suicidal, epileptic and dangerous cases. The other works, such as the reconstruction of the laundry, the erection of sanitary turrets on the male and female sides of the main building and a mortuary, will be commenced this spring. The total expenditure was £22,120 16*s.* 8*d.*, or £20 11*s.* 1*d.* per head; this being 15*s.* 4*d.* per head less than in 1891.

Nile-street Hospital, Cork.

The annual ball for the benefit of the lying-in hospital, Nile-street, was held last week. The ball was well attended and a very considerable sum has been obtained for a deserving charity.

Mr. Werner has been appointed Lecturer on Ophthalmology in the Catholic University Medical School.

February 14th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The Twelfth Congress for Internal Medicine.

The twelfth Congress for Internal Medicine will meet at Wiesbaden from April 12th to 15th, Immermann of Bâle in the chair. On the 12th Rumpf of Hamburg and Gaffky of Giessen will speak on cholera. On the 14th the subject of "traumatic neuroses" will be dealt with by Strümpell of Erlangen and Wernicke of Breslau. The following papers are also announced: Ziemssen of Munich on Parenchymatous Injections in Diseases of the Tonsils; Emmerich of Munich on the Preparation, Preservation and Application of "Immuntoxinprotein" for the Cure of Infectious Diseases and Protective Inoculation against them; Adamkiewicz of Cracow on Cancer and its Treatment; Jaksch of Prague on the Chemistry of the Blood; Meringe of Halle on the Function of the Stomach.

The German Pestilence Act.

The draught of an Act concerning the combating of diseases dangerous to the public was laid before the Federal Council of the German Empire a few days ago. It is in six sections consisting of forty-six paragraphs. The first section treats of notification, the second of the ascertaining of the disease, the third of protective measures, the fourth of indemnifications, the fifth consists of general regulations, and the sixth deals with penalties. It is hoped that the Act will pass through the various legislative stages and come into force this year.

An International Cholera Conference.

It is stated in the papers that an International Cholera Conference will meet in Dresden this month, but I hear on excellent authority that it will not meet till March. The *Politische Korrespondenz* (*Political Correspondence*) writes: "The measures which were taken by the various Governments last autumn on the occasion of the outbreak of cholera had an extremely paralysing effect on all commercial traffic. The possibility of cholera breaking out again next spring has given rise to the general wish to bring about an international discussion of the questions at issue, with a view to taking care by joint agreements that, on the one hand, the spread of the pestilence be combated in the most uniform manner possible, and that, on the other, the limitations of traffic caused thereby do not go beyond the limits of scientifically recognised necessity. The Austrian Government has therefore suggested to the other European States the convening of an international conference to deliberate the above questions. It is also intended that the question of river navigation shall be discussed, and an agreement regarding the questions connected with quarantine, in the spirit of the resolutions arrived at by the Venice Conference last year aimed at. We learn that this suggestion has been favourably received by all the Governments, and that such an international conference is expected to meet in Dresden in the end of February." The *Berlin Post*, a paper likely to be well informed on such a point, states that the suggestion was not made by Austria-Hungary alone, but by that State and Germany conjointly.

Professor Dubois-Reymond.

Professor Dubois-Reymond last Saturday celebrated the fiftieth anniversary of his graduation.

February 13th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Infectious Diseases in Austria-Hungary.

WHILE no case of cholera has occurred in the Austrian part of the empire during the last week, the occurrence of single cases has been notified again at Budapest, where five cases are now under treatment at the cholera hospital. An outbreak of influenza has been reported from some villages in Styria, where the mortality has been considerably increased by that disease. At Vienna some cases of intestinal influenza have been observed.

Teucrin in Chronic Inflammations.

Ever since Professor Liebreich of Berlin showed that the cantharidine compounds produce similar effects to Koch's tuberculin, various experimenters have searched for substances acting in the same manner, and there are certainly a great number of different chemical bodies which, when administered by injection into the animal organism, produce local hyperæmia around the remains of chronic inflammatory processes and the site of foreign bodies, as well as an increase of the production of lymph accompanied by so-called general symptoms—e.g., tachycardia, fever &c. Such a "lymphagogue," as it may be called from the experiments made by Professor Heidenhain of Breslau, has now been found by Professor Mosetig of Vienna to exist in the plant called Teucrium scordium, one of the Labiatæ which was officinal many years ago and which was known even to Dioscorides as possessing an antiseptic action. Mosetig used an aqueous extract prepared from the herb which he called teucrin, the dose varying up to five grammes. When injected subcutaneously in healthy or sick persons, teucrin produces a sudden rise of temperature, reaching 38·5° to 40·0° after four hours and lasting from eight to ten hours. The fever thus produced exhibits the characters of Volkmann's aseptic fever, the patients feel themselves as well as before, the appetite is increased, and the secretions and excretions are not changed. Locally there is only a slight swelling round the puncture; sometimes œdema and pain are produced, persisting for twenty-four hours in healthy persons, but in diseased tissues a very active hyperæmia is induced, lasting some days, and its effects manifest themselves by changes in the morbid tissue, and even, finally, by the total absorption of the latter. Teucrin injections were employed by Mosetig in cases of cold tuberculous abscesses. Generally three grammes of the teucrin were injected near the abscess subcutaneously. Two days after the injection the cold abscess had become

a hot one, which was then treated surgically like a common phlegmon. Healing took place very rapidly. More than 200 cases have been treated until now by this method by Mosetig. Teucrin has also been used in cases of fungous adenitis instead of *curettement* and has proved very successful. The injections showed a highly absorbent effect when made in the neighbourhood of swollen lymph glands. Beneficial effects of teucrin injections have also been found by Dr. Kliegl (Mosetig's assistant) in cases of actinomycosis and lupus. Mosetig believes that the injections of teucrin will prove to be very useful, especially in cases of local tuberculosis of the soft tissues, as caseous infiltrations are destroyed after the injections by the acute inflammation which follows, while more recent tuberculous infiltrations may disappear by being absorbed under the influence of the hyperæmia caused by the injection.

February 13th.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentlemen having passed the necessary examinations and having conformed to the by-laws and regulations, have been admitted Members of the College under the old regulations :—

Bashall, Charles Edward, LR.C.P. Lond., Kensington.
Broadhurst, Charles Henson, L R C.P. Lond., Anerley.
Carter, John George, L.R.C.P. Lond., New Kent-road.
Chamberlain, Edward Beatty, L.S.A., Broadhempston.
Christie, Wm. Ledingham, M.D. N Z., Dunedin, N. Zealand.
Darabseth, Naoroji Beramji, M.B. Aberd., Ampthill-square.
Edge, Arthur James, L R.C.P. Lond., St. Bartholomew's Hospital.
Morgan, Charles Arthur, L.S A., Weston-super-Mare.
Plumbe, Arthur, L R C P. Lond., Newark-street.
Stott, Frederick William Arthur, L.S.A., Haslingden.
Turnor, Philip Watson, L.R.C P. Lond., Arlington-road.

UNIVERSITY OF LONDON.—The following candidates have passed the Intermediate Examination in Medicine:

ENTIRE EXAMINATION.

First Division.—Guy Joseph Branson, B.A., Mason College; Archer Wm. R. Cochrane, St. Bartholomew's Hospital; Ralph Hopton, Yorkshire College.

Second Division.—Percy Edward Adams, Percy Crompe Barford, Frank Marsden Burnett, J. E. Goodfellow Calverley, Cyrus Sempill De Segundo, William Edward Nicholls Dunn, and Thos. Hampton, St. Bartholomew's Hospital; Jackson Arthur Atkinson and Francis Chown, St. Mary's Hospital; Cecil Banting, Francis James Coutts, Alfred Henry Gerrard, Wm. Ernest Leetham Hornor, and Arthur Marriott, University College; Joseph Cohen, Hugh Mallinson Rigby, and Richard Hamilton Townend, London Hospital; Ernest Coleman, Guy's Hospital; Arthur Pollard Cummings, Yorkshire College; Robert Hughes, St. Thomas's Hospital; Tom Harold Hunt, Owens and Yorkshire Colleges; Frank Harwood Jacob and Fredk. Septimus Penry, King's College; William Percy Nicol, Mason College; George Basil Price, Bristol Medical School and Clifton Laboratory; Matthew Henry Raper, Middlesex Hospital; Sydney Gordon Tippett and Francis Kenneth Wilson, Westminster Hospital; Thomas Henry Wells, Middlesex Hospital and Birkbeck Institute.

EXCLUDING PHYSIOLOGY.

First Division.—Eustace Bernard Bostock, Mason College; Arthur William Jenkins, University College.

Second Division.—Wilfrid Aliport, Charles Holt Caldicott and David Horwitch, Mason College; Maxwell Dick, Robert Macfie Johnston, Edward Thomas Jones and Morris Wilks, University College; Arthur David Ducat, St. Bartholomew's Hospital; William Henry Holliday and Albert Edward Hutton, Yorkshire College; Clarence Harry Mott, London Hospital.

PHYSIOLOGY ONLY.

First Division.—Arthur Hunnard, University College.

Second Division.—Joseph Norwood Brown, George Wilfrid Gostling, Austin Edward Reynolds and Sidney Edward Shoppee, University College; John Samuel Chater, St Bartholomew's Hospital; Matthew Leslie G. Hallright, Mason College; George Robert Harcourt, St. Thomas's Hospital; Frank Drew Harris and Sydney Price James, St. Mary's Hospital; Amelia Maitland Le Pelley, London School of Medicine for Women; John Mace and Archibald Tait, Yorkshire College; William Matthews Price, Guy's Hospital; Robert Henry Tompsett, St. Thomas's Hospital; Archibald Young, Sheffield Medical School and University College.

UNIVERSITY OF DUBLIN.—The following degrees were conferred by the University Caput this week :—

Bachelor in Medicine, Surgery and Obstetrics.—Andrew Francis Dixon, William George Dunwoody, Hampton Atkinson Gray, John George Hearn, Hugh Irwin, Henry Thomas Knaggs, Francis Hyde Maberly, Edward Hugh Montgomery, Daniel Frederic Rambaut, and Richard A. Shekelton.

Doctor in Medicine.—Arthur Aulad Ali, Charles Robert Browne, Daniel Frederic Rambaut, Wm. Ribton Spowart, Charles Elrington Stokes, Philip Crampton Walker, and Digby Cooke White.

THE WOODSTOCK HOSPITAL, CAPE TOWN.—On the 16th ult. the suburban hospital, situated in Woodstock, Cape Town, was opened by the Governor, Sir Henry Loch, with masonic honours, and amidst great enthusiasm. The cost of the hospital is estimated to amount to about £1500, which has already been nearly covered by subscriptions.

THE OPIUM TRAFFIC.—On Wednesday last a meeting was convened at Exeter Hall, under the presidency of Sir Joseph Pease, M.P., to protest against the opium traffic. Resolutions urging reasons against the continuance of the traffic and calling upon Her Majesty's Ministers to suppress it, in the interest alike of humanity in general and of the people of India in particular, were carried unanimously.

THE SANITARY INSPECTORS' ASSOCIATION.—Dr. B. W. Richardson, the president of the above Association, presided at the annual dinner, which was held in London, at the Criterion on Saturday, Feb. 11th. In replying to the toast of his health, Dr. Richardson spoke of the genuine tribute which had been paid to the Society by French scientific men and referred to the awakened interest in England. It was the mission of the Association, he said, to make the nation a garden of purity and sweetness.

FOOTBALL CASUALTIES.—In a match on the new Recreation Ground at Alton, Surrey, on the 4th instant, between Farnham and Alton, a player fractured his jaw. On Saturday last the following accidents occurred: During the progress of a match between the Leeds Parish Church and Sunderland teams at Crown Point a player of the former team sustained serious internal injuries and was removed to the infirmary; during a match at Wallsend-on-Tyne between Percy Park and Wallsend a member of the latter team fractured his leg below the knee; whilst playing in a League game at Darwen a player fractured one of his legs.

CHARING-CROSS HOSPITAL.—The report of the annual Court of Governors, which was held on the 15th inst., was, from a financial point of view, far from satisfactory. Indeed the state of things in this respect, the report stated, afforded ground for considerable apprehension, so that unless help be vouchsafed to a large extent the number of beds in the institution will have to be speedily reduced. The ordinary income accruing to the general fund during the past year had amounted to £8566, of which £1790 was derived from donations, against £3815 from the same source in 1891. It is to be hoped, as the chairman remarked, that the operations of the charity may not be crippled by want of means, and that projects for enlarging the accommodation for both students and nurses may yet be carried out.

METROPOLITAN ASYLUMS BOARD.—The number of patients remaining in the several fever hospitals of the Board at midnight on Feb. 14th was as follows:—Eastern Hospital, 193 scarlet fever, 59 diphtheria and 34 enteric fever; North-Eastern Hospital, 493 scarlet fever; North-Western Hospital, 204 scarlet fever, 96 diphtheria and 7 enteric fever; Western Hospital, 212 scarlet fever, 32 diphtheria, and 9 enteric fever; South-Western Hospital, 238 scarlet fever, 53 diphtheria and 23 enteric fever; South-Eastern Hospital, 289 scarlet fever, 13 diphtheria, 2 typhus fever, and 13 enteric fever; Northern Hospital, 525 scarlet fever and 14 diphtheria; Gore Farm Hospital, 300 scarlet fever. On the same date on the hospital ships *Atlas* and *Castalia* there were 46 and 71 cases of small-pox respectively.

SOCIETY OF PUBLIC ANALYSTS.—A special meeting of the members of this Society was held on Wednesday last at the rooms of the Chemical Society with a view to the consideration of a series of resolutions bearing upon the working of the adulteration laws. The chairman, Mr. M. A. Adams, F.R.C.S., said the Council of the Society had invited a number of representative men to attend the meeting. He then proceeded to move resolutions to the effect that an amendment of the adulteration laws was urgently required, and that it is necessary that adequate provision be made for securing uniformity in their application; further, that it is desirable that there should be a duly constituted chemical department attached to the Local Government Board, and that the compulsory combination of the two offices of medical officer of health and public analyst is undesirable. The resolutions were carried.

PRESENTATION.—On Tuesday, Feb. 7th, Dr. Fletcher Beach was presented by the officers, attendants and nurses of Darenth Asylum for Imbecile Children with a pair of handsome silver candelabra on his resigning the post of medical superintendent after eighteen years' service. He is succeeded by Dr. Walmsley, late senior assistant medical officer of Leavesden Asylum.

LITERARY INTELLIGENCE.—If wisdom fails to penetrate the civic understanding it will assuredly not be because of the absence of a multitude of counsellors. The cry is still they come. The radiance from a new guiding star is on the horizon—nay, it has verily risen. The first number of *London: a Journal of Civic and Social Progress*, is already published. If the new journal carries out its programme and is successful in instilling its principles it will have accomplished a notable work.

LONDON FEVER HOSPITAL, LIVERPOOL-ROAD.—At the annual meeting of this institution, held on Friday, Feb. 10th, it was stated in the report that during the year 1892 there were 748 patients admitted into the hospital. The mortality was 1·9 per cent. The donations and subscriptions showed an increase of £1097 over that of 1891. Lord Balfour of Burleigh, who presided, said the cost of the year's work had been £9644, of which the patients had contributed £2692. An appeal was made for subscriptions to defray an estimated sum of £6000 required to provide further accommodation for the nurses.

PROVIDENT SURGICAL APPLIANCE SOCIETY.—The twenty-first annual dinner of this Society was held in London at the Hôtel Métropole on Monday, Feb. 13th. Mr. Arthur Stride, manager of the London, Tilbury and Southend Railway Company, who presided, directed attention to the way in which help was given by this Society. The Society gave help without regard to age, race or creed; it had no system of letters of introduction and it tried to give a maximum of aid with a minimum of trouble. During the past year it had relieved 6516 people. The subscriptions collected during the evening amounted to £1181.

ÆSCULAPIUS LODGE OF FREEMASONS, No. 2410.—The ordinary meeting of this lodge was held at the Café Royal, Regent-street, on the 8th inst., when the W.M. (Deputy-Inspector-General Belgrave Ninnis, M.D.) presided, supported by the officers of the lodge and a number of brethren. After the minutes of the last meeting had been read and confirmed Bro. Surgeon-Captain R. Ashton Bostock, L.R.C.P. Lond., M.R.C.S., was unanimously elected a joining member. Bro. W. Arbuthnot Lane, M.S.Lond., F.R.C.S.Eng., was admitted to the third degree by the W.M. The routine business of the lodge having been transacted and a number of letters of apology for non-attendance on account of illness and professional duties on the part of absent members having been read by the secretary, the lodge was closed. The brethren afterwards dined together and spent a pleasant social evening, when the loyal and masonic toasts were duly honoured and suitably responded to.

NOTES IN PARLIAMENT.

The Identification of Foreign Meat.

IN addition to Mr. George Lambert's Bill, to which reference was made last week, there is a measure on this subject presented for the acceptance of Parliament by Mr. Coningsby Disraeli. The two Bills are not unlike in their main features. They both provide for the labelling of the foreign meat and the distinguishing of shops where it is sold. Instead, however, of making use of the local authority for purposes of registration, Mr. Disraeli proposes that all dealers in foreign or colonial meat shall take out a yearly licence from the Commissioners of Inland Revenue. He also invests Customs officers, medical officers of health, inspectors of nuisances and police constables with the powers of inspection authorised under the Sale of Food and Drugs Act of 1875, permitting them, however, to take samples of the meat without going through the form of purchase prescribed by that Act. Another point in Mr. Disraeli's Bill is that all foreign or colonial meat forwarded by public conveyance shall be labelled and consigned as such.

Pleuro-Pneumonia.

In anticipation of the debate next month on the subject of pleuro-pneumonia Dr. Farquharson has given notice of an amendment to the effect that any attempt to interfere permanently with the distribution of store cattle from abroad throughout the United Kingdom will seriously affect the interests of agriculture, more especially in Aberdeenshire, where cattle feeding is extensively and successfully carried on.

The Use of Hemp Drugs in India.

Mr. Schwann, one of the representatives of Manchester, has given notice of the following motion for Friday, March 3rd, viz.:—"That, in the opinion of this House, the growth, cultivation, and sale of bhang, ganga, charas and other preparations of hemp by the provincial governments of India produce much misery, poverty, insanity and moral deterioration among the people of India; and whereas similar results in Turkey, Egypt and Greece have led to the absolute prohibition in those countries of the manufacture and common sale of hemp drugs, it is desirable that the Secretary of State for India should order a commission of experts to inquire into, and report upon the cultivation of, and trade in, all preparations of hemp drugs in Bengal, the effect of their consumption upon the people of that presidency, and the desirability of the prohibition of their sale; not less than one-half of such commission to be composed of non-official natives of India."

Sanitation in Schools.

In the House of Lords on the 10th inst. Lord Norton put a question as to the amount of school space required for sanitary purposes. Lord Kimberley explained that the object of the circular issued by the Vice-President of the Council was to obtain precise information so that schools might be brought up gradually to a higher standard in respect of sanitary and other requirements. In the discussion which followed Lord Salisbury deprecated forcing upon school managers a new and costly system of arrangements of whatever kind.

Tuberculosis in Cattle.

In the House of Commons on the 10th inst. Mr. Gardner, in reply to Mr. Hozier, said he should be glad to take any steps which might be found to be practicable to minimise the extent to which tuberculosis prevails amongst cattle; but whilst the subject is engaging the attention of the Legislature it would be impossible to propose legislation of an expensive nature on the subject.

Irregular Death Certification.

In reference to an inquest recently reported, in which the certification of death was deferred for some days after the actual decease, Mr. Asquith, in answer to a question put by Mr. Maden, said the circumstances of the case were put before the Registrar-General, who would no doubt take any proceedings which may be found to be necessary. Other irregularities, said the Home Secretary, would appear to have been disclosed in connexion with the case, and these would be reported to the Director of Public Prosecutions.

The Galway Hospital

In answer to a question put by Mr. Kenny respecting the amount of attendance at a hospital necessary to entitle a student of medicine to present himself for examination, Mr. Morley stated that he had been officially informed that the Galway Hospital fulfils in every particular the requirements set forth in the regulations of the Royal University.

Ill-fed School Children.

Mr. R. Wallace put a question on this subject, and elicited from Mr. Acland a reply to the effect that from inquiries he had made he felt sure that a very large number of children attend school without having been supplied with a sufficient amount of food. He would, however, communicate with the managers of some of the largest schools in order to gain information on the matter.

The Poor-law Commission.

In the House of Commons on the 9th inst. Mr. Fowler, in reply to Mr. Chamberlain and Mr. Hozier, said the system of Poor-law relief into which the Royal Commission is appointed to inquire is the system now in force in England and Wales, and to which alone the powers and duties of the Local Government Board extend. Scotland and Ireland have separate and different Poor-laws, with separate central authorities for their supervision.

Sanitary Authorities and Infectious Diseases.

Mr. H. Fowler, in reply to Mr. Johnson-Ferguson, said he was unable to state the number of sanitary authorities who have made special provision for the accommodation of persons suffering from infectious disease, but should be prepared to agree to a return on the subject if it be moved for.

Pleuro-pneumonia.

On the 14th inst. Mr. Macartney asked the President of the Board of Agriculture if his attention had been called to a resolution passed at a meeting of the Royal Agricultural Society urging the slaughter of all foreign cattle landing in the United Kingdom at the port of debarkation. Mr. Gardner said, though he had received a copy of that resolution he was unable to enter into any undertaking to introduce or support a measure to make such slaughter compulsory at the port of debarkation.

The Tuberculosis Commission.

In answer to a question by Mr. Yerburgh Mr. Gardner said frequent communication had been had with the Royal Commission with regard to the inclusion of tuberculosis in the Contagious Diseases (Animals) Act, and the Commission was extremely desirous to complete their work so far as is compatible with thorough scientific accuracy in respect of the questions committed to them.

Indian Opium.

Sir M. J. Stewart gave notice that on an early day he would move that a humble address be presented to Her Majesty to appoint a Royal Commission to inquire into the production, manufacture, and export of opium from India, and to move a resolution.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week for publication in the next number.*

ALLEN, WM., M.D., M.S. Irel., has been appointed Medical Officer for the Third (Eastern) Sanitary District of the Hexham Union, vice Richards, deceased.

BEAUMONT, E., L.R.C.P. Lond., M.R.C.S., has been appointed Assistant Medical Officer *pro tem.* to the Lewisham Board of Guardians.

BROWNING, G., M.R.C.S., has been reappointed Medical Officer of Health for the Stockabridge Urban Sanitary District of the Wortley Union.

COOPER, JAMES, M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon to the Great Northern Central Hospital, Holloway-road.

DAVIES, H., M.R.C.S., has been reappointed Medical Officer for the Cottage Homes of the Pont-y-Pridd Union.

EVATT, E. P., L.R.C.P., L.R.C.S. Edin., has been reappointed Medical Officer for the Tenth Sanitary District of the Hexham Union.

FENN, M.D. Edin., M.R.C.P. Lond., has been appointed Honorary Physician to the Essex and Colchester General Hospital.

FERNIE, F. E., M.R.C.S., L.R.C.P. Lond., has been appointed Junior House Surgeon to the Stockport Infirmary.

HILLMAN, G. B., L.S.A., has been appointed Medical Officer of Whitwood, vice McMaster.

HITCHINS, C. V., M.R.C.S., has been appointed Medical Officer of Health for Weston-super-Mare.

HOGG, R. B., M.R.C.S., has been appointed Senior House Surgeon to the Dunedin Hospital, New Zealand.

KEMPE, C. M., M.R.C.S., has been reappointed Medical Officer of Health for the Shoreham Port Sanitary Authority.

KENNIS, H. M., L.R.C.P. Irel., M.R.C.S., has been appointed Medical Officer for the No. 1 Sanitary District of the Bridgwater Union.

MANLEY, J. HERBERT H., M.B., B.C. Camb., M.R.C.S., D.P.H. Camb., has been reappointed Medical Officer of Health for the County Borough, West Bromwich.

PITCAIRN, G. K., M.B., C.M., has been reappointed Medical Officer of Health, Littleborough.

REICHARDT, E. N., M.B. Lond., has been appointed Medical Officer for the Ewell, Chessington and Cuddington Sanitary Districts of the Epsom Union.

THOMSON, ARTHUR, M.B. Edin., D.P.H. Camb., has been appointed Medical Officer of Health to the Urban Sanitary District of Stratford-on-Avon, and to the Rural Sanitary District of Stratford-on-Avon.

TREWBY LILIAN, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Senior House Surgeon, Lady Dufferin's Hospital at Agra, India.

VACHER, F., F.R.C.S., M.R.C.P. Edin., has been appointed Medical Officer of Health for the County Cheshire.

VINRACE, J. H., M.B. Lond., M.R.C.P., has been appointed a Physician to St. John's Hospital for Diseases of the Skin.

WOODFORDE, W. T. G., M.D. Lond., has been reappointed Medical Officer of Health for the Berkshire Combined Sanitary Districts.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

CANCER HOSPITAL (FREE) Fulham-road, S.W.—House Surgeon for six months. Salary at the rate of £50 per annum, with board and residence.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria-park, E.—House Physician for six months. Board and residence, and allowance for washing provided. (Apply to the Secretary, 24, Finsbury-circus, E.C.)

COUNTY ASYLUM, Prestwich, Manchester.—Junior Assistant Medical Officer (unmarried). Salary commences at £100 per annum, with prospects of future increases.

GENERAL HOSPITAL, Birmingham.—House Physician, for one year. Salary £70 per annum, with residence, board and washing.

LONDON LOCK HOSPITAL, Harrow-road, W.—House Surgeon to the Female Hospital. Salary £100 per annum, with board, lodging and washing.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—House Surgeon for six months. Salary at the rate of 50 guineas per annum, with residence in the hospital, board and washing provided, and an honorarium of five guineas, conditionally.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Junior House Surgeon, for six months.

METROPOLITAN ASYLUMS BOARD.—First Assistant Medical Officer for the Leavesden Asylum for Imbeciles, near Watford, Herts. Salary £160, rising £20 annually to £200, with board, furnished apartments and washing. (Apply at the Chief Offices, Norfolk-street, Strand, W.C.)

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon. Salary £150 per annum, with rooms and attendance.

OLDHAM INFIRMARY.—Senior House Surgeon. Salary £80 per annum, with board, lodging and washing.

OLDHAM INFIRMARY.—Junior House Surgeon. Salary £50 per annum, with board, lodging and washing.

PUBLIC DISPENSARY, 59, Stanhope-street, Clare-market.—Physician. (Apply to the Secretary, 14, Portugal-street, Lincoln's-inn.)

ROYAL SOUTH LONDON DISPENSARY, St. George's-cross, S.E.—Honorary Surgeon.

SALFORD ROYAL HOSPITAL.—House Surgeon. Salary £100 per annum, with board and residence.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square, W.C.—Assistant Physician.

ST. JOHN'S-WOOD AND PORTLAND TOWN PROVIDENT DISPENSARY, N.W.—Third Medical Officer. (Apply to the Secretary, 1, Henstridge-villas, St. John's-wood.)

ST. MARY'S HOSPITAL MEDICAL SCHOOL, London.—Demonstratorship in Chemistry and Physics. Salary £100 per annum.

ST. PANCRAS AND NORTHERN DISPENSARY, 126, Euston-road.—Physician Accoucheur. (Apply to Hon. Sec., 23, Gordon-street, Gordon-square, W.C.)

THE HOSPITAL FOR SICK CHILDREN, Great Ormond-street, Bloomsbury, W.C.—Surgeon.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond-street, Bloomsbury, W.C.—Assistant Surgeon.

UNIVERSITY OF GLASGOW.—Four Examinerships for Degrees in Medicine. Annual fee in each case is £30 and the term of office is till Dec. 31st, 1896.

WEST RIDING ASYLUM, Wakefield.—Resident Clinical Assistant, for six months. Board and furnished apartments provided.

YORK DISPENSARY.—Resident Medical Officer. Salary £150 a year, with furnished apartments, coals and gas.

Births, Marriages and Deaths.

BIRTHS.

BARKER.—On Feb. 7th, at Harley-street, Cavendish-square, W., the wife of Arthur E. Barker, F.R.C.S., of a daughter.

DALLEWY.—On Feb. 10th, at the Crescent, Wem, Shropshire, the wife of John Dallewy, L.R.C.P., M.R.C.S., of a daughter.

KENNEDY-CASLEY.—On Feb. 6th, at the Old House, Ipswich, the wife of R. Kennedy-Casley, M.D., of a daughter.

LOGIE.—On Feb. 10th, at Raglan, Monmouthshire, the wife of A. G. S. Logie, M.B., of a daughter.

PESKETT.—On Feb. 10th, at York House, Burnham, Somerset, the wife of A. W. Chalmers Peskett, M.A., M.B., B.C. Cantab., of a daughter.

WALKER.—On Feb. 14th, at Pine House, Hurworth-on-Tees, Darlington, the wife of Dr. C. E. Walker, of a son.

WILSON.—On the 9th inst., at Denham House, Goldhawk-road, London, W., the wife of James Wilson, M.D., of a daughter.

MARRIAGES.

JACK—BARRON.—On Feb. 14th, at St. Mary's, The Boltons, South Kensington, Dr. Jack, of Harley-gardens, to Matilda Stewart, third daughter of the late William Donovan Barron, of Gloucester-place, Portman-square.

MACGREGOR—KAYE.—On Feb. 8th, at All Saints', Cawthorne, by the Rev. C. T. Pratt, M.A., Vicar, assisted by the Rev. John Kaye, M.A., of Westbury, Wilts, brother of the bride, Alastair MacGregor, M.B. Edin. & C.M., of Shepley, Yorks., youngest son of the late Rev. Alexander MacGregor, M.A., West Church, Inverness, to Annie, only daughter of Joshua Kaye, Esq., of Dean Hill, Barnsley, Yorks.

NASH—WILSON.—On Feb. 9th, at St. Andrew's Church, Plymouth, by the Rev. W. Gray, Rector of Meavy, Walter Gifford Nash, F.R.C.S. Eng., son of the Rev. F. Gifford Nash, Vicar of Clavering, Essex, to Catharine Mabel Moore Wilson, daughter of J. Walter Wilson, Esq., 10, Leigham Villas, Plymouth.

RICHARDSON—EAGLAND.—On Feb. 1st, at St. Stephen's Church, Kirkstall, Leeds, by the Rev. Canon Talbot, assisted by the Rev. N. Egerton Leigh, Vicar of Kirstall, Rev. Cecil Sykes, Vicar of Cowick, and the Rev. J. Cockerill, Burley, Martin James Richardson, M.B., youngest son of Martin Richardson, Esq., solicitor, Bridlington, to Elizabeth Maud, youngest daughter of N. H. Eagland, Esq., M.D., St. Ann's Lodge, Burley, Leeds.

ROOKE—COCHRAN.—On Feb. 2nd, at St. Margaret's Church, Westminster, Ernest Morley Rooke, M.R.C.S. Eng., L.R.C.P. Lond., son of Thomas Morley Rooke, M.D., Cheltenham, to Fanny Josephine, second daughter of James Cochran, formerly of Widgiewa Estate, Riverina, New South Wales, Australia.

WHITEHEAD—CAYLEY.—On Feb. 13th, at St. Mark's, Woolston, Hants, Surgeon-Captain H. R. Whitehead, Army Medical Staff, second son of the late Rev. T. C. Whitehead, M.A., to Evelyn Wynne, second daughter of Henry Cayley, Esq., of the Towers, Woolston.

DEATHS.

DANIEL.—On Jan. 25th, at Wareham, Dorsetshire, Woodruffe Daniel, M.R.C.S. Eng.

DAVIES.—On Feb. 7th, at Marlborough-buildings, Bath, William Davies, M.D., F.R.C.P.L., aged 74.

HARRHY.—On Dec. 29th, 1892, at Barkley West, South Africa, William Rosser Harrhy, J.P., M.R.C.S., L.R.C.P., District Surgeon, aged 39 years, second son of the late George Harrhy, J.P., Tredegar, Mon.

HUTTON.—On Feb. 12th, at Carshalton, Stapleton-hall-road, Stroud-green, N., Robert James Hutton, Surgeon, suddenly.

MARSHALL.—On Feb. 4th, at his residence, Wallingford, J. H. Marshall, M.R.C.S., aged 82.

WAGHORN.—On Feb. 10th, at Newport, Surgeon-Lieutenant-Colonel Henry Waghorn, late Army Medical Staff, aged 55.

WALFORD.—On Feb. 9th, at Uppingham, Augustus David Cesly Walford, M.R.C.S., L.S.A., aged 71 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages and Deaths.

Medical Diary for the ensuing Week.

Monday, February 20.

KING'S COLLEGE HOSPITAL.—Operations, 2 P.M.; Fridays and Saturdays, at the same hour.
ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1.30 P.M.; and on Tuesday, Wednesday, Friday, and Saturday at the same hour.
ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations, daily at 10 A.M.
ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1.30 P.M.; and each day at the same hour.
CHELSEA HOSPITAL FOR WOMEN.—Operations, 2 P.M.; Thursday, 2 P.M.
HOSPITAL FOR WOMEN, SOHO-SQUARE.—Operations, 2 P.M.; and on Thursday at the same hour.
METROPOLITAN FREE HOSPITAL.—Operations, 2 P.M.
ROYAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.
CENTRAL LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M., and each day in the week at the same hour.
UNIVERSITY COLLEGE HOSPITAL.—Ear and Throat Department, 9 A.M.; Thursday, 9 A.M. Eye Department, 2 P.M.
LONDON POST-GRADUATE COURSE.—Royal London Ophthalmic Hospital: 1 P.M., Mr. W. Lang: Diseases of Cornea.—101, Gt. Russell-st.: 8 P.M., Dr. Galloway: Lesions of the Genito-Urinary Tract.—Parkes Museum (Margaret-st., W.): 3.30 P.M., Dr. Parkes: Dwelling Houses.
CENTRAL LONDON THROAT AND EAR HOSPITAL.—5 P.M. Mr. Lennox Browne: Benign and Malignant Disease of the Faucial Tonsils. (Post-graduate Lecture.)
THROAT HOSPITAL (Golden-sq.).—5 P.M. Dr. J. W. Bond: External Operations on the Larynx.
MEDICAL SOCIETY OF LONDON.—8.30 P.M. Dr. Ralfe: Some Clinical Features of Chronic Albuminuria.

Tuesday, February 21.

GUY'S HOSPITAL.—Operations, 1.30 P.M., and on Friday at the same hour. Ophthalmic Operations on Monday at 1.30 and Thursday at 2 P.M.
ST. THOMAS'S HOSPITAL.—Ophthalmic Operations, 4 P.M.; Friday, 2 P.M.
ST. MARK'S HOSPITAL.—Operations, 2 P.M.
CANCER HOSPITAL, BROMPTON.—Operations, 2 P.M.; Saturday, 2 P.M.
WESTMINSTER HOSPITAL.—Operations, 2 P.M.
WEST LONDON HOSPITAL.—Operations, 2.30 P.M.
UNIVERSITY COLLEGE HOSPITAL.—Skin Department, 1.45; Saturday, 9.15.
ST. MARY'S HOSPITAL.—Operations, 1.30 P.M. Consultations, Monday, 2.30 P.M. Skin Department, Monday and Thursday, 9.30 A.M. Throat Department, Tuesdays and Fridays, 1.30 P.M. Electro-therapeutics, same day, 2 P.M.
ROYAL INSTITUTION.—3 P.M. Prof. V. Horsley: The Brain.
LONDON POST-GRADUATE COURSE.—Hospital for Skin Diseases, Blackfriars: 4 P.M., Dr. Payne: Alopecia, its Varieties.—Bethlem Hospital: 2 P.M., Dr. T. Hyslop: General Paralysis of the Insane.—101, Great Russell-st.: 8 P.M., Dr. Handfield-Jones: Polypi.
PATHOLOGICAL SOCIETY OF LONDON.—Mr. J. Jackson Clarke: A Critical Survey of Recent Work bearing on the Pathology of Cancer and Sarcoma. Observations on the same subject by Dr. Ruffer, Dr. Woodhead, and Dr. James Galloway.
ROYAL COLLEGE OF PHYSICIANS (Theatre of the Laboratories, Examination Hall, Victoria Embankment).—5 P.M. Dr. B. A. Whitelegge: Changes of Type in Epidemic Disease. (Milroy Lecture.)
LONDON SKIN HOSPITAL (40, Fitzroy-sq., W.).—8 P.M. Mr. James Startin: Ringworm and Alopecia.

Wednesday, February 22.

NATIONAL ORTHOPÆDIC HOSPITAL.—Operations, 10 A.M.
MIDDLESEX HOSPITAL.—Operations, 1.30 P.M.; Saturdays, 2 P.M. Obstetrical Operations, Thursdays, 2 P.M.
CHARING-CROSS HOSPITAL.—Operations, 3 P.M., and on Thursday and Friday at the same hour.
ST. THOMAS'S HOSPITAL.—Operations, 1.30 P.M.; Saturday, same hour.
LONDON HOSPITAL.—Operations, 2 P.M.; Thursday and Saturday, same hour.
ST. PETER'S HOSPITAL, COVENT-GARDEN.—Operations, 2 P.M.
SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN.—Operations, 2.30 P.M.
GREAT NORTHERN CENTRAL HOSPITAL.—Operations, 2 P.M.
UNIVERSITY COLLEGE HOSPITAL.—Operations, 1.30 P.M. Dental Department, 9.30 A.M. Eye Department, 2 P.M.
ROYAL FREE HOSPITAL.—Operations, 2 P.M., and on Saturday.
CHILDREN'S HOSPITAL, GREAT ORMOND-STREET.—Operations, 9.30 A.M. Surgical Visits on Wednesday and Saturday at 9.15 A.M.
LONDON POST-GRADUATE COURSE.—Hospital for Consumption, Brompton: 4 P.M., Dr. R. Maguire: Sputum.—Royal London Ophthalmic Hospital: 8 P.M., Mr. A. S. Morton: Ocular Paralyses.
THROAT HOSPITAL (Golden-sq.).—5 P.M. Mr. T. Mark Hovell: Affections of the External Meatus.
HUNTERIAN SOCIETY.—Mr. Walter Rivington: Certain Branches of Operative Surgery. (Second Hunterian Society Lecture.)

Thursday, February 23.

ST. GEORGE'S HOSPITAL.—Operations, 1 P.M. Surgical Consultations, Wednesday, 1.30 P.M. Ophthalmic Operations, Friday, 1.30 P.M.
UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M. Ear and Throat Department, 9 A.M. Eye Department, 2 P.M.
LONDON POST-GRADUATE COURSE.—Hospital for Sick Children, Great Ormond-st.: 4 P.M., Mr. W. A. Lane: Acquired Deformities.—National Hospital for the Paralysed and Epileptic: 2 P.M., Dr. Tooth: Paraplegia.—London Throat Hospital (Gt. Portland-st.): 8 P.M., Dr. Whistler: Syphilis of the Throat and Nose.—Central London Sick Asylum: 5.30 P.M., Dr. Bristowe: Cases in the Wards.
CENTRAL LONDON THROAT AND EAR HOSPITAL.—5 P.M. Dr. Dundas Grant: Diseases of the Labyrinth.
ROYAL COLLEGE OF PHYSICIANS (Theatre of the Laboratories, Examination Hall, Victoria Embankment).—5 P.M. Dr. B. A. Whitelegge: Changes of Type in Epidemic Disease. (Milroy Lecture.)

Friday, February 24.

ROYAL SOUTH LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M.
UNIVERSITY COLLEGE HOSPITAL.—Eye Department, 2 P.M.
LONDON POST-GRADUATE COURSE.—Hospital for Consumption, Brompton: 4 P.M., Dr. R. Maguire: Sputum.—Bacteriological Laboratory, King's College: 11 A.M. to 1 P.M., Prof. Crookshank: Leprosy and Glanders (Sections).
CANCER HOSPITAL (Fulham-road, S.W.).—4 P.M. Dr. F. A. Purcell: Cancer of the Rectum.
UNIVERSITY COLLEGE CHEMICAL AND PHYSICAL SOCIETY.—8 P.M. Annual Public Meeting. Prof. Watson-Smith: Diseases incident to Workpeople in Chemical and other Industries. Exhibition of Apparatus.
CLINICAL SOCIETY OF LONDON.—8.30 P.M. Living Specimens at 8 P.M.:—Dr. Hector Mackenzie: A case of Myxœdema cured by Thyroid Gland Feeding.—Mr. Betham Robinson: Two cases of Congenital Luxation of the Head of the Humerus.—Dr. Newton Pitt: A case of Peripheral Asphyxia, Rheumatic Arthritis, and Extensive Deposit of Fibroid Nodules. And others. Papers at 9 P.M.:—Mr. W. Arbuthnot Lane: Cases illustrating a New Operation or Dorsal Dislocation of the Head of the Femur, and some points in his Surgery of the Hip-joint.—Mr. C. B. Lockwood: Sequel to a case of Excision of the Head of the Femur and Erosion of the Hip-joint through the Anterior Incision, and with immediate and permanent Closure of the Wound.—Mr. G. H. Makins: A Note on the Prognosis of Sacro-iliac Diseases, with three illustrative cases.—Mr. Raymond Johnson: A case of Lympho-sarcoma of Tonsil Removed by External Incision with Preliminary Ligature of External Carotid Artery.

Saturday, February 25.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M.; and Skin Department, 9.15 A.M.
LONDON POST-GRADUATE COURSE.—Bethlem Hospital: 11 A.M., Dr. H. Corner: Alcoholic Insanity.

Notes, Short Comments & Answers to Correspondents.

EDITORIAL NOTICE.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side only of the paper.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Publisher."*

We cannot undertake to return MSS. not used.

PUBLISHER'S NOTICE.

IN order to facilitate the work of reference to the volumes of THE LANCET, we have arranged in the future to publish duplicate copies of the Index to each half-yearly volume in a form in which they may be subsequently filed or bound together.

We have had a large number of duplicate copies of the Index to the last half-yearly volume printed, and those of our subscribers who may wish to be supplied with loose copies can obtain the same (without extra charge) on making application to the Publisher of THE LANCET.

THE THYROID GLAND IN PHARMACY.

IN connexion with the subject of the treatment of myxœdema by means of preparations of the thyroid gland, *Mr. C. B. Allen* of Kilburn writes:—"It is quite an easy matter to prepare an ordinary mixture from the thyroid gland by selecting, say, twenty healthy lobes, carefully mincing and macerating them for twelve hours with two ounces and a half of a mixture of equal parts of glycerine and water, then adding ten ounces of chloroform water, frequently agitating for six hours longer, filtering through paper, washing the mass with chloroform water till eighteen ounces have been obtained, and adding to this ten drachms of tincture of orange and making up to one pint. Each ounce of this mixture contains the active principle of one lobe, and the physician can

direct it to be given in half-ounce doses or just as he thinks proper. This mixture keeps good for some time and the patient can be placed under treatment without of necessity knowing that there is anything special about it, as must be the case if portions of the gland either raw or partially cooked are given."—We have also received a letter from *Messrs. Brady and Martin* of Newcastle-on-Tyne, who describe the precautions they adopt to secure that the thyroids used are obtained from healthy animals and are themselves free from morbid changes. They do not agree with Dr. Napier (Glasgow) as to the frequency with which "cysts" occur in the gland, which they place at about 2 per cent. In preparing the glands they are carefully sliced and examined, and if a "cyst" is found that lobe is rejected and the knife which has cut it is carefully cleaned and sterilised before it is used to cut another lobe. The lobes are then bruised in a mortar, and for each lobe there is added 1 c.c. of glycerine and 1 c.c. of a 0·5 per cent. of carbolic acid in boiled distilled water. The mixture is allowed to stand for twenty-four hours and squeezed through a cloth in a press to obtain as much liquid as possible. The product for each lobe was found by Dr. George Murray in his first experiments to be about 3 c.c.

Dr. John P. Henry.—We have received several papers on the same subject as our correspondent's contribution, all of which, owing to the demands on our space, we are unable to publish *in extenso*. We propose, however, in an early issue to publish the important facts recorded by these contributors, together with such illustrations as may be required.

Mr. William Muir.—Our correspondent probably refers to a solution of nitrate of silver. The cloudiness it produces does not necessarily indicate animal matter, however. It may be used to test the purity of distilled water, for almost all other waters contain chlorides.

Coöperator.—We do not see that the cases are quite parallel or that medical men, as such, would be well suited for doing medical agency work.

ANCIENT MEDICAL BILL.

To the Editors of THE LANCET.

SIRS,—Please insert the following copy of a portion of an apothecary's quarterly account for medicines supplied to Queen Elizabeth. The original is in Latin:—

"Hugh Morgan, her Majestie's Apothecarie, asketh allowance for the parcelles following—viz., for her Majestie's owne person—from the 24th day of June, 1588, beying Mydsomer Day, unto the 29th of September, 1588, beying Michaelmas Day, to be payd by the treasurer of her highness's Chamber: A confection made like a Manus Christi [a tablet such as candied horehound is now made in] with bezoar stone and unicorn's horn, by the Queen's order, for Mrs. Skipwith, 11 shillings. A Royal sweetmeat with incised rhubarb, by the Queen's order, for Mrs. Scudamores, 16 pence. Rose-water for the King of Navarre's [afterwards Henry IV. of France] ambassador, 12 pence. A conserve of barberries, with preserved damascene plums and other things, for Mr. Ralegh [afterwards Sir Walter Ralegh], by the Queen's order, 6 shillings. Sweet scent to be used at the christening of Sir Richard Knightly's son, 2 shillings and 6 pence."

Gargles occur frequently, and now and then hysteric and diuretic medicines; articles of perfumery are numerous, especially "suffitus odoriferi" and "aqua rosamus," which last seems to have been used abundantly in the Chapel Royal, chamber, dressing-room, supper-room, wardrobe, laundry and "pro domo Richemount." The amount appears by the receipt:—

"Receyved the 5th day of December, 1588, of the Right Hon. Sir Thoma Heneage, Knight, Thr'er of her Majestie's chamber, by force hereof, iiiixxij*li.* vija. viij*d.* [£83 7s. 8d.]

"Hugh Morgan, Pharmacopœus."

I am, Sirs, yours faithfully,

Norwich, Feb. 14th, 1893. CHARLES WILLIAMS.

"THE SUNNY CORNERS OF HOMELAND."

A COPY of a new illustrated monthly venture, with the above title, makes its appeal to our sympathies from our Library Table. There is no reason that we can see why such a publication as the one under notice should not occupy a place more or less useful in the series of periodical guide-books issued from time to time. We cannot say very much for the illustrations, which are decidedly wanting in finish and pictorial effect. But the object aimed at—viz., to call increased attention to the attractions of our English health resorts as compared with those in foreign climes, with their often insalubrious sanitary arrangements—cannot but have our commendation. The number contains a short article by Dr. P. de Villiers on the advantages of Hastings as a temporary residence.

DENTISTRY IN FRANCE.

Alceolus asks: "Can any of your readers inform me what facilities there are for studying dentistry in Paris or Montpelier, or where definite information on the subject may be obtained?"

R. V.—We are not aware of any suggested relationship between the two diseases named. All the larger text-books of medicine contain ample notice of them. For special details reference might be made to Dr. Thin's work on Leprosy and to the Clinical Society's Report on Myxœdema.

THE OFFICE OF CORONER.

AMONGST the questions of commanding interest in civilised and populous communities must be placed that of the complete and satisfactory method of ascertaining by judicial inquiry the cause of death in cases in which that event has been sudden or attended by circumstances of a suspicious character. Yet, important as it is, the subject is one on which, even in intelligent minds, much ignorance prevails. To diffuse information, therefore, on points in connexion with the working of the coroner's court has been the laudable object of Mr. F. W. Lowndes, M.R.C.S., by the publication of a pamphlet entitled "Reasons why the Office of Coroner should be Held by a Member of the Medical Profession." The arguments adduced in support of the contention suggested by the title are sustained by reference to the history of cases which at the time obtained world-wide celebrity. The *brochure* is deserving of a large circulation.

Messrs. Mawson, Swan and Weddel.—Eugenol acetamide does not, as far as we can learn, appear to be obtainable in London. The original notice of its action appeared in a German pharmaceutical journal, so that probably a German firm of chemists might be able to obtain it.

Mr. William Robinson.—We cannot concur in the advice given to our correspondent's friend. He and his friends must contrive some more creditable way of finding the means to complete his medical studies.

LEGAL RESPONSIBILITY FOR ILLNESS CONTRACTED IN INSANITARY HOUSES.

To the Editors of THE LANCET.

SIRS,—In reply to Mr. Smith's letter under this heading I beg to state that when a house is let furnished there is an implied warranty that it is fit for occupation (see Wilson *v.* Finch Hatton, Law Reports, vol. ii., Exchequer Division, 336, April, 1877), and if any injury or damage is suffered by the tenant, such injury or damage arising from any unfitness of the premises to be occupied (including illness caused by insanitary condition), then the tenant is entitled to compensation from the owner of the premises. I may add that, with certain exceptions, no warranty is implied in the case of unfurnished houses.

I am, Sirs, yours faithfully,

HENRY A. JONES, F.S.I., Special San. Sci. Cert.

Wellington-street, Strand, W.C., Feb. 8th, 1893.

THE LOCUM TENENS AND INQUEST FEES.

Enquirer.—Such fees, as all others, clearly belong to the principal and should be accounted for to him. It is perhaps charitable to suppose that the locum tenens regarded them as a perquisite, and there is something to be said for this view. But it is for the principal to take it and not the locum tenens, whose duty it is to report them and pay them to his principal on his return in the absence of any contract to the contrary.

Mr. W. Sinclair Cameron.—Our correspondent has been treated inconsiderately. There is no virtue in acting so as to bring a good rule into disrespect. Our correspondent will be justified in claiming his usual fee. It will be time enough to strain a rule applying to medical men when the fee has been offered, as it should have been offered in the first instance.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Feb. 16th, 1893.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Dry Bulb.	Wet Bulb.	Solar Radiation in Vacuo	Maximum Temp. Shade.	Min. Temp.	Rainfall.	Remarks at 8.30 A.M.
Feb. 10	29·33	N.W.	45	43	56	53	40	·14	Cloudy
,, 11	29·65	S.W.	50	49	54	51	45	·08	Overcast
,, 12	29 63	N.W.	37	36	66	46	25	·19	Cloudy
,, 13	29 81	N.W.	38	37	63	49	36	·04	Raining
,, 14	29 37	W.	49	47	64	53	38	·06	Raining
,, 15	29·77	W.	42	41	55	51	40	·10	Hazy
,, 16	29 57	S.W.	47	46	58	50	42	·01	Cloudy

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